

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF MICHIGAN  
SOUTHERN DIVISION**

**PROGME CORPORATION**

208 Clair Hill Drive  
Rochester Hills, MI 48309,

Civil Action No.

**Plaintiff**

**JURY TRIAL DEMANDED**

**v.**

**COMPLAINT FOR PATENT INFRINGEMENT**

**AMAZON.COM, INC.**

1200 12<sup>th</sup> Avenue South, Ste. 1200  
Seattle, WA 98144

**BRIGHT HOUSE NETWORKS, LLC**

5000 Campuswood Drive  
East Syracuse, NY 13057

**CSC HOLDINGS LLC**

1111 Stewart Avenue  
Bethpage, NY 11714

**CHARTER COMMUNICATIONS INC.**

400 Atlantic Street  
Stamford, CT 06901

**COMCAST CORPORATION**

1 Comcast Center  
Philadelphia, PA 19103-2838

**HP INC.**

3000 Havover Street  
Palo Alto, CA 94304

**HULU, LLC**

2500 Broadway  
Santa Monica, CA 90404

**iHEARTMEDIA, INC.**

200 East Basse Road

San Antonio, TX 78209

**JELLI, INC.**

703 South B Street, 2<sup>nd</sup> Fl.  
San Mateo, CA 94401

**KATZ MEDIA, INC.**

125 W. 55<sup>th</sup> Street  
New York, NY 10019

**NBCUNIVERSAL, INC.**

30 Rockefeller Plaza  
New York, NY 10112

**NETFLIX, INC.**

100 Winchester Circle  
Los Gatos, CA 95032

**SAMSUNG ELECTRONICS AMERICA, INC.**

85 Challenger Road, 6<sup>th</sup> Fl.  
Ridgefield Park, NJ 07660

**SEACHANGE INTERNATIONAL, INC.**

50 Nagog Park  
Acton, MA 01720

**THE WALT DISNEY COMPANY**

500 S. Buena Vista  
Burbank, CA 91521

**THE WEATHER CHANNEL, INC.**

300 Interstate North Parkway  
Atlanta, GA 30339

**TIME WARNER CABLE INC.**

10 Columbus Circle  
New York, NY 10019,

**Defendants**

Plaintiff Progme Corporation (“Progme”) files this Complaint for patent infringement against Defendant AMAZON.COM, INC. (“Amazon”), Defendant BRIGHT HOUSE NETWORKS,

LLC (“Bright House Networks”), Defendant CSC HOLDINGS LLC (“Cablevision”), Defendant CHARTER COMMUNICATIONS INC. (“Charter Communications”), Defendant COMCAST CORPORATION (“Comcast”), Defendant HP INC. (“HP”), Defendant HULU, LLC (“Hulu”), Defendant iHEARTMEDIA, INC. (“iHeartMedia”), Defendant JELLI, INC. (“Jelli”), Defendant KATZ MEDIA, INC. (“Katz Media”), Defendant NBCUNIVERSAL, INC. (“NBCUniversal”), Defendant NETFLIX, INC. (“NetFlix”), Defendant SAMSUNG ELETRONICS AMERICA, INC. (“Samsung”), Defendant SEACHANGE INTERNATIONAL, INC. (“SeaChange International”), Defendant THE WALT DISNEY COMPANY (“Disney”), Defendant THE WEATHER CHANNEL, INC. (“The Weather Channel”) and Defendant TIME WARNER CABLE INC. (“Time Warner”) for infringement of U.S. Patent No. 8,713,425 (“’425 Patent”) pursuant to 35 U.S.C. § 271. A copy of the ’425 Patent is attached as **Exhibit A**.

### **THE PARTIES**

1. Plaintiff Progme is a corporation existing under the laws of Michigan with its principal place of business at 208 Clair Hill Drive, Rochester Hills, Michigan 48309.
2. Upon information and belief, Defendant Amazon is a corporation organized and existing under the laws of the State of Delaware with a principal place of business at 1200 12<sup>th</sup> Avenue South, Ste. 1200, Seattle, WA 98144.
3. Upon information and belief, Defendant Bright House Networks is a corporation organized and existing under the laws of the State of Delaware with a principal place of business at 5000 Campuswood Drive, East Syracuse, NY 13057.
4. Upon information and belief, Defendant Cablevision is a corporation organized and existing under the laws of the State of New York with a principal place of business at 1111 Stewart Avenue, Bethpage, NY 11714.

5. Upon information and belief, Defendant Charter Communications is a corporation organized and existing under the laws of the State of Delaware with a principal place of business at 400 Atlantic Street, Stamford, CT 06901.
6. Upon information and belief, Defendant Comcast is a corporation organized and existing under the laws of the State of Pennsylvania with a principal place of business at 1 Comcast Center, Philadelphia, PA 19103.
7. Upon information and belief, Defendant HP is a corporation organized and existing under the laws of the State of California with a principal place of business at 3000 Havover Street, Palo Alto, CA 94304.
8. Upon information and belief, Defendant Hulu is a corporation organized and existing under the laws of the State of California with a principal place of business at 2500 Broadway, Santa Monica, CA 90404.
9. Upon information and belief, Defendant iHeartMedia is a corporation organized and existing under the laws of the State of Texas with a principal place of business at 200 East Basse Road, San Antonio, TX 78209.
10. Upon information and belief, Defendant Jelli is a corporation organized and existing under the laws of the State of California with a principal place of business at 703 South B Street, 2<sup>nd</sup> Fl., San Mateo, CA 94401.
11. Upon information and belief, Defendant Katz Media is a corporation organized and existing under the laws of the State of New York with a principal place of business at 125 W. 55<sup>th</sup> Street, New York, NY 10019.

12. Upon information and belief, Defendant NBCUniversal is a corporation organized and existing under the laws of the State of New York with a principal place of business at 30 Rockefeller Plaza, New York, NY 10112.
13. Upon information and belief, Defendant NetFlix is a corporation organized and existing under the laws of the State of California with a principal place of business at 100 Winchester Circle, Los Gatos, CA 95032.
14. Upon information and belief, Defendant Samsung is a corporation organized and existing under the laws of the State of New Jersey with a principal place of business at 85 Challenger Road, 6<sup>th</sup> Fl., Ridgefield Park, NJ 07660.
15. Upon information and belief, Defendant SeaChange International is a corporation organized and existing under the laws of the State of Massachusetts with a principal place of business at 50 Nagog Park, Acton, MA 01720.
16. Upon information and belief, Defendant Disney is a corporation organized and existing under the laws of the State of California with a principal place of business at 500 S. Buena Vista, Burbank, CA 91521.
17. Upon information and belief, Defendant TheWeather Channel is a corporation organized and existing under the laws of the State of Georgia with a principal place of business at 300 Interstate North Parkway, Atlanta, GA 30339.
18. Upon information and belief, Defendant Time Warner is a corporation organized and existing under the laws of the State of New York with a principal place of business at 10 Columbus Circle, New York, NY 10019.

#### **JURISDICTION AND VENUE**

19. This is an action for patent infringement arising under the Patent Laws of the

United States, 35 U.S.C. § 1, et seq. including 35 U.S.C. § 271.

20. Subject matter jurisdiction is proper in this Court pursuant to 28 U.S.C. §§ 1331 and 1338(a).
21. Venue in this judicial district is proper under 28 U.S.C. §§ 1391 including 28 U.S.C. § 1391 (b) and (c) and 28 U.S.C. §§ 1400(b).
22. This Court has personal jurisdiction over Defendants Amazon, Bright House Networks, Charter Communications, Comcast, HP, iHeartMedia, Katz Media, NBCUniversal, NetFlix, Samsung, Walt Disney and Time Warner. These Defendants regularly conduct and transact business in and within this judicial district itself and through one or more subsidiaries, affiliates, partners or other related parties and have committed and continue to commit acts of patent infringement in this judicial district.
23. All defendants named in the above-captioned matter engage in persistent courses of conduct and derive substantial revenue from products and/or services provided to individuals in this judicial district, purposefully establishing substantial, systematic, and continuous contacts within this judicial district to reasonably expect to be haled into court here and/or to be subjected to Michigan's long arm statute within this judicial district.
24. In addition, Defendants Bright House Networks, Charter Communications and Time Warner provide cable television service in several respective suburban cities in metro Detroit, within the reach of this judicial district.
25. Further, another basis for venue in this judicial district against all of the defendants named in the above-captioned matter except Defendants Bright House Networks, Charter Communications and Time Warner is based on contact with and operation of a certain cloud-based data center hosted by Defendant Amazon within this judicial district.

26. Specifically, venue is proper against Defendant Comcast based on its operation of a data center, “365 CLOUD STORAGE”, hosted by Defendant Amazon (Amazon Web Services) within this judicial district, DT1 Data Center at 24660 Lahser Road, Southfield, MI 48034.
27. Venue is also proper against Defendant Amazon based on its having business contacts within this judicial district including operating and hosting said DT1 Data Center.
28. Said DT1 Data Center is one of 15 data centers operated by Defendant Amazon connecting major cities across the U.S. in an integrated, redundant and fault-tolerant Amazon Web Services (AWS) cloud network wherein if one of said data centers, such as one located outside of Michigan, fails then another data center, such as the DT1 Data Center within this judicial district, takes over and provides cloud processing and transmission services on behalf of said failed data center in an integrated, redundant, fault-tolerant and “geo-caching” architecture.
29. Venue is proper against Defendant Cablevision based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
30. Venue is proper against Defendant Disney based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
31. Venue is proper against Defendant HP based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial

district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.

32. Venue is proper against Defendant Hulu based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
33. Venue is proper against Defendant iHeartMedia based on its operation of radio stations and business offices within this judicial district as well as its active use of the RadioSpot Ad Server operations involving at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
34. Venue is proper against Defendant Jelli based on its operation of at least one data center including RadioSpot Ad Server operations in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
35. Venue is proper against Defendant Katz Media based on its advertising business contact and business office within this judicial district as well as its active use of the RadioSpot Ad Server operations involving at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
36. Venue is proper against Defendant NBCUniversal based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in



this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.

37. Venue is proper against Defendant Netflix based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
38. Venue is proper against Defendant Samsung based on its Amazon cloud player application in the Samsung Smart Hub involving operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
39. Venue is proper against Defendant SeaChange International based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.
40. Venue is proper against Defendant The Weather Channel based on its operation of at least one data center in said AWS cloud network and consequential use of the DT1 Data Center in this judicial district for cloud processing and transmission in said integrated, redundant, fault-tolerant and “geo-caching” architecture.

**U.S. PATENT 8,713,425**

41. On April 29, 2014, the U.S. Patent and Trademark Office duly and legally issued

U.S. Patent No. 8,713,425 (“the ’425 Patent”), entitled “AUDIO/VIDEO PROGRAM-RELATED HYPERLINK PRINTER”, to Progme assignee after a full and fair examination.

42. As indicated in the appended **Exhibit B**, Progme became the owner of all rights, title and interest in and to the ’425 Patent by recorded assignment and possesses all rights of recovery under the ’425 Patent, including the right to sue and recover damages for all infringements. Since the date of said assignment, Progme has been and remains the sole owner of said rights, title and interest in and to the ’425 Patent.
43. The ’425 Patent discloses and claims, in part, a method and an apparatus for generating an hyperlink address string structured as a PrintWriter method to a resource in the initial array position in a for loop array expression for transmission in conjunction with program signals representative of predetermined program material as well as encoding, transmitting, receiving and processing program-related signals including said hyperlink address string. See the ’425 Patent at pg. 17, cols 37-39.
44. The ’425 Patent further discloses and claims, in part, a predetermined hyperlink address to predetermined hyperlinked content comprising a resource identifier to identify i) a resource identified from resources of threads performed in a Java Virtual Machine (JVM) and ii) an application, in which certain thread objects belong or a resource consumer related to the resource belongs, executed in said JVM; a resource consumer for each thread using a resource in said JVM; a resource manager to manage resource usage wherein said resource identifier and resource manager are generated using Java language and registered resource managers are stored according to types and a resource allocation policy comprising calling a resource identifier that is in an initial array position of a list in

which resource identifiers uniquely identifying resources are arrayed or requesting an initial resource identifier that is first on an array in a resource identifiers list. See the '425 Patent at pg. 21, cols. 6-10, 12-14, 17-19, 26-38, 42-44, 50-52 and 59-63.

45. By disclosing that said resource identifier is in said initial array position or said initial resource identifier is first on an array in a resource identifiers list, the '425 Patent discloses that said resource identifier in said initial array position or said initial resource identifier comprises the initial or first element of said array.

46. It is well known by those skilled in the art that an array holds the address to the first element of the array.

47. The '425 Patent is valid and enforceable.

**COUNT I: DEFENDANT COMCAST INFRINGEMENT OF U.S. PATENT 8,713,425**

48. Plaintiff re-alleges paragraphs 1-47 as if fully set forth herein.

49. Defendant Comcast has been and is now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalents, the '425 Patent in this judicial district and elsewhere.

50. Defendant Comcast deploys individually named servlets, each servlet belonging to a predetermined servlet class having a corresponding url pattern servlet mapping and defined by certain Java code "open-sourced" at github.com in Comcast's cable television systems operating in AWS data centers including the DT1 Data Center in this judicial district and throughout the United States. See <https://github.com>.

51. Said individually named servlets include: CNSControllerServlet of the com.comcast.cns.controller.CNSControllerServlet servlet-class having url pattern / servlet mapping, EndpointServlet of the

com.comcast.cmb.common.controller.EndpointServlet servlet-class having url pattern /Endpoint/\* servlet mapping, AdminServlet of the

com.comcast.cmb.common.controller.AdminServlet servlet-class having url pattern /webui/\* servlet mapping , CMBVisualizerServlet of the

com.comcast.cmb.common.controller.CMBVisualizerServlet having url pattern /webui/cmbvisualizer/\* servlet mapping, CNSUserPageServlet of the

com.comcast.cns.controller.CNSUserPageServlet servlet-class having url pattern /webui/cnsuser/\* servlet mapping, CQSUserPageServlet of the

com.comcast.cqs.controller.CQSUserPageServlet servlet-class having url pattern /webui/cqsuser/\* servlet mapping, UserLoginPageServlet of the

com.comcast.cmb.common.controller.UserLoginPageServlet servlet-class having url pattern /webui/userlogin/\* servlet mapping, UserPageServlet of the

com.comcast.cmb.common.controller.UserPageServlet servlet-class having url pattern /webui/user/\* servlet mapping, CNSSubscriptionPageServlet of the

com.comcast.cns.controller.CNSSubscriptionPageServlet servlet-class having url pattern webui/cnsuser/subscription/\* servlet-mapping, CNSPublishToTopicPageServlet of the

com.comcast.cns.controller.CNSPublishToTopicPageServlet servlet-class having url pattern /webui/cnsuser/publish/\* servlet-mapping, CNSEditTopicDisplayNamePage of

the com.comcast.cns.controller.CNSEditTopicDisplayNamePage servlet-class having url pattern /webui/cnsuser/editdisplayname/\* servlet mapping,

CNSEditTopicDeliveryPolicyPage of the

com.comcast.cns.controller.CNSEditTopicDeliveryPolicyPage servlet-class having url pattern /webui/cnsuser/editdeliverypolicy/\* servlet mapping,

CNSEditSubscriptionDeliveryPolicyPage of the  
 com.comcast.cns.controller.CNSEditSubscriptionDeliveryPolicyPage servlet class having  
 url pattern /webui/cnsuser/subscription/editdeliverypolicy/\* servlet mapping,  
 CNSRawMessageDeliveryPolicyPage of the  
 com.comcast.cns.controller.CNSRawMessageDeliveryPolicyPage servlet class having url  
 pattern /webui/cnsuser/subscription/rawmessagedeliverypolicy/\* servlet mapping,  
 CNSTopicPermissionPage of the com.comcast.cns.controller.CNSTopicPermissionPage  
 servlet class having url pattern /webui/cnsuser/permission/\*,  
 CNSTopicAddPermissionPage of the  
 com.comcast.cns.controller.CNSTopicAddPermissionPage servlet class having url  
 pattern /webui/cnsuser/addpermission/\* servlet mapping,  
 CQSQueueMessagesPageServlet of the  
 com.comcast.cqs.controller.CQSQueueMessagesPageServlet servlet class having url  
 pattern /webui/cqsuser/message/\* servlet mapping, CQSAddQueuePermissionPage of the  
 com.comcast.cqs.controller.CQSAddQueuePermissionPage servlet class having url  
 pattern /webui/cqsuser/addpermission/\* servlet mapping, CQSQueuePermissionsPage of  
 the com.comcast.cqs.controller.CQSQueuePermissionsPage servlet class having url  
 pattern /webui/cqsuser/permissions/\* servlet mapping, CNSWorkerStatePageServlet of  
 the com.comcast.cns.controller.CNSWorkerStatePageServlet servlet class having url  
 pattern /webui/cnsworkerstate/\* servlet mapping, CQSAPIStatePageServlet of the  
 com.comcast.cqs.controller.CQSAPIStatePageServlet servlet class having url pattern  
 /webui/cqsapistate/\* servlet mapping, CQSEditQueueAttributePage of the  
 com.comcast.cqs.controller.CQSEditQueueAttributePage servlet class having url pattern

/webui/cqsuser/editqueueattributes/\* servlet mapping and CMBStatsServlet of the com.comcast.cmb.common.controller.CMBStatsServlet servlet class having url pattern /webui/cmbcallstats/\* servlet mapping.

See <https://github.com/Comcast/cmb/blob/master/config/WEB-INF-CNS/web.xml>,  
<https://github.com/Comcast/cmb/blob/master/config/WEB-INF-CQS/web.xml> and  
<https://github.com/Comcast/cmb/blob/master/WebContent/WEB-INF/web.xml>.

52. Several of said individually named servlets include Java code comprising at least one print() or println() statement of the PrintWriter method in an array structure (specified below) enabling the hyperlinking to the first element of an array expressed in an array expression wherein said first element of said array comprising said resource in the initial array position of a list in which resource identifiers uniquely identifying resources are arrayed is defined within said at least one print() or println() statement.
53. Said individually named servlets hyperlinking to the first element of the array comprising a resource in the initial array position of a list in which resource identifiers uniquely identifying resources are arrayed defined within said at least one print() or println() statement prints predetermined printable output of said first element of said array via the PrintWriter.
54. Said predetermined printable output of said first element of said array printed via the PrintWriter includes AWS cloud network usage monitoring information such as performance and advertising metrics, web statistics and cost control information.
55. Said predetermined printable output of said first element of said array printed via the PrintWriter includes cloud-based content information such as predetermined program

material represented by program signals representative of predetermined program material.

56. Defendant Comcast has committed and continues to commit acts of infringement of the '425 Patent by using "Request and Response parameters included in the one or more predetermined parameters defining the pre-defined printable output of the predetermined hyperlinked content included in the second attribute in the hyperlink address string [to] ... encapsulate the data sent by the client, thereby allowing servlets to report status information such as error". See the '425 Patent at pg. 14, cols. 62-67 – pg. 15, col. 1.
57. Defendant Comcast has committed and continues to commit acts of infringement of the '425 Patent by using servlet hyperlinking and PrintWriter printing to "have access to some servlet-specific configuration data at initialization time ... [allowing] different instances of the same servlet class to be initialized with different data, and be managed as differently named servlets ... [wherein the] data provided at initialization time includes an area where each instance keeps its persistent instance-specific state ". See the '425 Patent at pg. 15, cols. 14-20.
58. Defendant Comcast has committed and continues to commit acts of infringement of the '425 Patent by using servlet hyperlinking and PrintWriter printing to "pass arguments to an instantiated HttpServlet object through the [Java programming language] properties object" as "a set of 'name:value' pairs ... [for] the system administrator ... [to] 'customize' an HttpServlet for a particular server at a particular site ... [to] pass the Httpservlet object site specific information about the network location of a database which stores documents that will be requested by client processors across the network or

the amount of memory available in system buffers which will be used for processing the server administrator". See the '425 Patent at pg. 17, cols. 58-67 – pg. 18, cols. 1-3.

59. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CMBStatsServlet, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

1) the first element of the array expression "API Response Time Percentiles [" + rs + " MS]" is defined within PrintWriter println() statements "<p><a href=?rs=1&ac="+ac+"> 1ms</a>&nbsp;<a href=?rs=10&ac="+ac+">10ms</a>&nbsp;<a href=?rs=100&ac="+ac+">100ms</a>&nbsp;<a href=?rs=1000&ac="+ac+">1000ms</a></p>" having an out parameter and "<p><img src='/webui/cmbvisualizer/responsetimeimg?rs="+rs+"></p>" having an out parameter;



2) the first element of the array expression "Redis Response Time Percentiles" is defined within a PrintWriter println() statement "<p><img src='/webui/cmbvisualizer/responsetimeimg?redis=true'></p>" having an out parameter;

3) the first element of the array expression "Cassandra Response Time Percentiles" is defined within a PrintWriter println () statement "<p><img src='/webui/cmbvisualizer/responsetimeimg?cassandra=true'></p>" having an out parameter;

4) the first element of the array expression "API Response Time Percentiles [" + ac + "]" is defined within PrintWriter println() statements "<a href='?ac="+a+"&rs="+rs+"'> "+a+"</a>&nbsp;" having an out parameter and "<p><img src='/webui/cmbvisualizer/ responsetimeimg?ac="+ac+"'></p>" having an out parameter;

5) the first element of the array expression "API Call Mix" is defined within a PrintWriter println() statement "<p><img src='/webui/cmbvisualizer/callcountimg'></p>" having an out parameter;

6) the first element of the array expression "API Call Distribution" is defined within a PrintWriter println() statement "<p><img src='/webui/cmbvisualizer/calldistributionimg'" having an out parameter;

7) the first element of the array expression "API Call Counts" is defined within PrintWriter println() statements "<tr><th>API</th><th>Since " + new Date(CMBCControllerServlet.startTime)+"</th><th>Last Hour</th></tr>" having an out parameter and "<tr><td>" + action + "</td><td>

" +CMBControllerServlet.callStats.get(action)+"</td><td>" +total+"</td></tr>"

"<tr><td>" +action+"</td><td>"

" +CMBControllerServlet.callFailureStats.get(action)+"</td></tr>" having an out parameter and

8) the first element of the array expression "API Failure Counts" is defined within a PrintWriter println() statement "<tr><td>" +elements[0]+"</td></tr>" having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cmb/common/controller/CMBStatsServlet.java>.

60. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said AdminServlet, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "All Users" is defined within PrintWriter print() statements "<form action=\"/webui\" method=POST>" having an out parameter, "<table><tr><td>Username:</td><td>Password:</td><td>Description:</td><td></td></tr>" having an out parameter and "<tr>" + "<td><input type='text' name='user'/></td>" + "<td><input type='password' name='password'/></td>" + "<td><input type='text' name='description'/></td>" + "<td><input type='checkbox' id='isAdmin' name='isAdmin' value='true'/><label for='isAdmin'>Is Admin</label></td>" + "<td><input type='submit' value='Create' name='Create' /></td></tr>" having an out parameter;
- 2) the first element of the array expression for (int i = 0; users != null && i < users.size(); i++) { is defined within PrintWriter println() statements "<tr><th>User Name</th>" having an out parameter, "<th>User ID</th>" having an out parameter, "<th>Is Admin</th>" having an out parameter, "<th>Access Key</th>" having an out parameter and "<th>Access Secret</th><th>&nbsp;</th><th>&nbsp;</th><th>&nbsp;</th></tr>" having an out parameter;
- 3) the first element of the array expression "<td>"+user.getUserName()+"<input type='hidden' name='user' value=" + user.getUserName()+ (user.getDescription().isEmpty()? "" : "<br/><i>" + user.getDescription() + "</i>") "</td>" is defined within a PrintWriter println() statement having an out parameter;
- 4) the first element of the array expression "<td>"+user.getId()+"</td>" is defined within a PrintWriter println() statement having an out parameter;

- 5) the first element of the array expression "<td>"+user.getIsAdmin()+"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 6) the first element of the array expression "<td>"+user.getAccessKey()+"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 7) the first element of the array expression "<td>"+user.getAccessSecret()+"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 8) the first element of the array expression "<td><a href='/webui/cnsuser?userId="+user.getUserId()+">CNS</a> </td>" is defined within a PrintWriter println() statement having an out parameter and
- 9) the first element of the array expression "<td><a href='/webui/cqsuser?userId="+user.getUserId()+">CQS</a> </td>" is defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cmb/common/controller/AdminServlet.java>.

61. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said AdminServletBase, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or

println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

1) the first element of the array expression "<a

href='/webui/cnsuser?userId="+user.getUserId()+"> "+user.getUserName()+"s

Topics</a>" + " | " is defined within a PrintWriter println() statement having an out parameter;

2) the first element of the array expression "<a

href='/webui/cqsuser?userId="+user.getUserId()+"> "+user.getUserName()+"s

Queues</a>" + " | " is defined within a PrintWriter println() statement having an out parameter;

3) the first element of the array expression "<a

href='/webui/cnsuser?userId="+mainUser.getUserId()+">

"+mainUser.getUserName()+"s Topics</a>" + " | " is defined within a PrintWriter println() statement having an out parameter;

4) the first element of the array expression "<a

href='/webui/cqsuser?userId="+mainUser.getUserId()+">

"+mainUser.getUserName()+"s Queues</a>" + " | " is defined within a PrintWriter println() statement having an out parameter;

5) the first element of the array expression "<a

href='/webui/cqsuser?userId="+mainUser.getUserId()+"> Queues</a>" + " | " is

defined within a PrintWriter println() statement having an out parameter and

6) the first element of the array expression "<a

href='/webui/cnsuser?userId="+mainUser.getUserId()+"> Topics</a>" + " | " is

defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cmb/common/controller/AdminServletBase.java>.

62. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CQSQueuePermissionsPage, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

1) the first element of the array expression "<table><tr><td><b>User

Name:</b></td><td>" + user.getUserName() + "td></tr>" is defined within a

PrintWriter println() statement having an out parameter;

- 2) the first element of the array expression "`<tr><td><b>User ID:</b></td><td>"+user.getUserId()+"</td></tr>`" is defined within a `PrintWriter println()` statement having an out parameter;
- 3) the first element of the array expression "`<tr><td><b>Access Key:</b></td><td>"+user.getAccessKey()+"</td> </tr>`" is defined within a `PrintWriter println()` statement having an out parameter;
- 4) the first element of the array expression "`<tr><td><b>Access Secret:</b></td><td>"+user.getAccessSecret()+" </td></tr>`" is defined within a `PrintWriter println()` statement having an out parameter;
- 5) the first element of the array expression "`<tr><td><b>Queue Name:</b></td><td>"+Util.getNameForAbsolute QueueUrl(queueUrl)+"</td></tr>`" is defined within a `PrintWriter println()` statement having an out parameter;
- 6) the first element of the array expression "`<tr><td><b>QueueUrl:</b></td><td>"+queueUrl+"</td></tr></table> <br>`" is defined within a `PrintWriter println()` statement having an out parameter;
- 7) the first element of the array expression "`<form action=\\\"/webui/cqsuser/permissions/?userId="+user.getUserId()+"&queueUrl="+queueUrl+"\\\" method=POST>`" is defined within a `PrintWriter print()` statement having an out parameter;
- 8) the first element of the array expression `for (int i = 0; stmts != null && i < stmts.size(); i++) {` is defined within a `PrintWriter print()` statement "`<form action=\\\"/webui/cqsuser/permissions/?userId="+user.getUserId()+"&queueUrl="+queueUrl+"\\\" method=POST>`" having an out parameter and a `PrintWriter println()`

statement "<tr><td>" + stmt.getEffect().toString()+ "</td><td>" having an out parameter;

9) the first element of the array expression for (int k = 0; k < stmt.getPrincipal().size(); k++) { is defined within the PrintWriter println() statement user1+"<br>" having an out parameter;

10) the first element of the array expression for (int j = 0; j < stmt.getAction().size(); j++) { is defined within the PrintWriter println() statement action1+"<br>" having an out parameter and

11) the first element of the array expression "<p><a href=" onclick=\"window.open('/webui/cqsuser/addpermission/? queueName="+ queueName+ "&userId="+userId+"', 'AddQueuePermission', 'location=0,menubar=0,scrollbars=0,status=0,titlebar=0,toolbar=0,height=470,width=730')\">Add permission</a></p>" is defined within a PrintWriter println() statement having an out parameter.

See [https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/](https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/CQSQueuePermissionsPage.java)

CQSQueuePermissionsPage.java.

63. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CQSUserPageServlet, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print



instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "`<table><tr><td><b>User Name:</b></td><td>"+ user.getUserName()+"</td></tr>`" is defined within a PrintWriter println() statement having an out parameter;
- 2) the first element of the array expression "`<tr><td><b>User ID:</b></td><td>"+ user.getId()+"</td></tr>`";
- 3) the first element of the array expression "`<tr><td><b>Access Key:</b></td><td>"+user.getAccessKey()+" </td></tr>`" is defined within a PrintWriter println() statement having an out parameter;
- 4) the first element of the array expression "`<tr><td><b>Access Secret:</b></td><td>"+user.getAccessSecret()+" </td>`" is defined within a PrintWriter println() statement having an out parameter;
- 5) the first element of the array expression "`<tr><td><b>Queue Count</b></td><td>"+numQueues+ "</td></tr></table>`" is defined within a PrintWriter println() statement having an out parameter;
- 6) the first element of the array expression "`<tr><form action=\"/webui/cqsuser?userId="+user.getId() + "\" method=POST>`" is defined within a PrintWriter println() statement having an out parameter;

- 7) the first element of the array expression "<td><input type='text' name='queueNamePrefix' value= '"+(queueNamePrefix!=null?queueNamePrefix:"") + "'><input type='hidden' name='userId' value='"+ userId + "'>" is defined within a `PrintWriter println()` statement having an out parameter;
- 8) the first element of the array expression "<input type='checkbox' " + (showQueueAttributes ? "checked='true' " : "") + "name='ShowAttributes' value='ShowAttributes'>Show Attributes</input>" is defined within a `PrintWriter println()` statement having an out parameter;
- 9) the first element of the array expression "<input type='checkbox' " + (showQueuesWithMessagesOnly ? "checked='true' " : "") + "name='ShowMessagesOnly' value='ShowMessagesOnly'>Only Queues With Messages</input></td>" is defined within a `PrintWriter println()` statement having an out parameter;
- 10) the first element of the array expression "<td>"+i+"</td>" is defined within a `PrintWriter println()` statement having an out parameter;
- 11) the first element of the array expression "<td>"+queueUrls.get(i)+"<input type='hidden' name='qUrl' value= '"+queueUrls.get(i) + "'><input type='hidden' name='qName' value= '"+Util.getNameForAbsoluteQueueUrl(queueUrls.get(i)) + "'></td>" is defined within a `PrintWriter println()` statement having an out parameter;
- 12) the first element of the array expression "<td>"+Util.getArnForAbsoluteQueueUrl(queueUrls.get(i)) + "<input type='hidden' name='arn' value= '"+Util.getArnForAbsoluteQueueUrl(queueUrls.get(i)) + "'></td>" is defined within a `PrintWriter println()` statement having an out parameter;

13) the first element of the array expression

"<td>"+CMBProperties.getInstance().getRegion()+"</td>" is defined within a

PrintWriter println() statement having an out parameter;

14) the first element of the array expression

"<td>"+(attributes.get("VisibilityTimeout") != null ? attributes.get

("VisibilityTimeout");""))+"</td>" is defined within a PrintWriter println() statement

having an out parameter;

15) the first element of the array expression

"<td>"+(attributes.get("MaximumMessageSize") != null ? attributes.

get("MaximumMessageSize");""))+"</td>" is defined within a PrintWriter println()

statement having an out parameter;

16) the first element of the array expression

"<td>"+(attributes.get("MessageRetentionPeriod") != null ? attributes.

get("MessageRetentionPeriod");""))+"</td>" is defined within a PrintWriter println()

statement having an out parameter;

17) the first element of the array expression "<td>"+(attributes.get("DelaySeconds")

!= null ? attributes.get ("DelaySeconds");""))+"</td>" is defined within a PrintWriter

println() statement having an out parameter;

18) the first element of the array expression

"<td>"+(attributes.get("ReceiveMessageWaitTimeSeconds") != null ?

attributes.get("ReceiveMessageWaitTimeSeconds");""))+"</td>" is defined within a

PrintWriter println() statement having an out parameter;

19) the first element of the array expression

"<td>"+(attributes.get("NumberOfPartitions") != null ? attributes.

get("NumberOfPartitions"):"" )+"</td>" is defined within a PrintWriter println()

statement having an out parameter;

20) the first element of the array expression

"<td>"+(attributes.get("NumberOfShards") != null ? attributes.

get("NumberOfShards"):"" )+"</td>" is defined within a PrintWriter println()

statement having an out parameter;

21) the first element of the array expression "<td>"+(attributes.get("IsCompressed")

!= null ? attributes.get("IsCompressed"):"" )+"</td>" is defined within a PrintWriter

println() statement having an out parameter;

22) the first element of the array expression

"<td>"+(attributes.get("ApproximateNumberOfMessages") != null ?

attributes.get("ApproximateNumberOfMessages"):"" )+"</td>" is defined within a

PrintWriter println() statement having an out parameter;

23) the first element of the array expression

"<td>"+(attributes.get("ApproximateNumberOfMessagesNotVisible") != null ?

attributes.get("ApproximateNumberOfMessagesNotVisible"):"" )+"</td>" is defined

within a PrintWriter println() statement having an out parameter;

24) the first element of the array expression

"<td>"+(attributes.get("ApproximateNumberOfMessagesDelayed") != null ?

attributes.get("ApproximateNumberOfMessagesDelayed"):"" )+"</td>" is defined

within a PrintWriter println() statement having an out parameter;

- 25) the first element of the array expression "<td><a href='/webui/cqsuser/message?userId=" + user.getUserId() + "&queueName=" + Util.getNameForAbsoluteQueueUrl(queueUrls.get(i)) + ">Messages</a></td>" is defined within a `PrintWriter println()` statement having an out parameter;
- 26) the first element of the array expression "<td><a href='/webui/cqsuser/permissions?userId="+ user.getUserId() + "&queueName="+ Util.getNameForAbsoluteQueueUrl(queueUrls.get(i)) + ">Permissions</a></td>" is defined within a `PrintWriter println()` statement having an out parameter and
- 27) the first element of the array expression "<td><a href='onclick=\"window.open ('/webui/cqsuser/editqueueattributes? queueName="+ Util.getNameForAbsoluteQueueUrl(queueUrls.get(i)) + "&userId="+userId+", 'EditQueueAttributes', 'height=630,width=580,toolbar=no')\">Attributes</a></td>" is defined within a `PrintWriter println()` statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/CQSUserPageServlet.java>.

64. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CQSAPIStatePageServlet, as documented in the following numbered sub-paragraphs, defining within a `print()` or `println()` statement of the `PrintWriter` method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said `print()` or `println()` statement comprises a print instruction for the `PrintWriter` to print to screen predetermined printable output of said

first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression for (Element dataCenterElement:DataCenterList){ is defined within PrintWriter println() statements "<option selected value=\""+dataCenter+"\">"+dataCenter+"</option>" having an out parameter and "<option value=\""+dataCenter+"\">"+dataCenter+"</option>" having an out parameter;
- 2) the first element of the array expression for (Element stats : statsList) { is defined within PrintWriter println() statements "<td>" + host + "</td>" having an out parameter, "<td>"+serviceUrlString+"</td>" having an out parameter, "<td>"+XmlUtil.getCurrentLevelTextValue(stats, "JmxPort")+ "</td>" having an out parameter, "<td>"+XmlUtil.getCurrentLevelTextValue(stats, "LongPollPort")+ "</td>" having an out parameter, "<td>"+XmlUtil.getCurrentLevelTextValue(stats, "DataCenter")+ "</td>" having an out parameter, "<td>"+new Date(Long.parseLong(XmlUtil.getCurrentLevelTextValue(stats, "Timestamp")))+ "</td>" having an out parameter, "<td>"+XmlUtil.getCurrentLevelTextValue(stats,

- "NumberOfLongPollReceives")+"</td>" having an out parameter,
- "<td>"+XmlUtil.getCurrentLevelTextValue(stats, "RedisServerList")+"</td>" having an out parameter, "<td>"+XmlUtil.getCurrentLevelTextValue(stats, "NumberOfRedisKeys")+"</td>" having an out parameter,
- "<td>"+XmlUtil.getCurrentLevelTextValue(stats, "NumberOfRedisShards")+"</td>" having an out parameter and
- "<td>"+XmlUtil.getCurrentLevelTextValue(stats, "CassandraClusterName")+"</td>") having an out parameter;
- 3) the first element of the array expression "<td>"+new Date(Long.parseLong(XmlUtil.getCurrentLevelTextValue (stats, "Timestamp")))+ "</td>" is defined within a PrintWriter println() statement having an out parameter;
- 4) the first element of the array expression "<td>"+cassandraNodes+"</td>" is defined within a PrintWriter println() statement having an out parameter and
- 5) the first element of the array expression for (String action : aggregateCallStats.keySet()) { is defined within a PrintWriter println() statement "<tr><td>"+action+"</td><td>"+aggregateCallStats.get(action)+"</td></tr>" having an out parameter.

See [https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/](https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/CQSAPIStatePageServlet.java)

CQSAPIStatePageServlet.java.

65. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CNSWorkerStatePageServlet, as documented in the following numbered sub-paragraphs,

defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression for (Element  
dataCenterElement:DataCenterList){ is defined within PrintWriter println()  
statements "<option selected  
value=\""+dataCenter+"\">"+dataCenter+"</option>" having an out parameter and  
"<option value=\""+dataCenter+"\">"+dataCenter+"</option>" having an out  
parameter;
- 2) the first element of the array expression for (Element stats : statsList) { is defined  
within PrintWriter println() statements "<td>" + host + "</td>" having an out  
parameter, "<td>"+serviceUrlString+"</td>" having an out parameter,  
"<td>"+XmlUtil.getCurrentLevelTextValue(stats, "JmxPort")+ "</td>") having an  
out parameter, "<td>"+XmlUtil.getCurrentLevelTextValue(stats,  
"DataCenter")+ "</td>" having an out parameter, "<td>"+new  
Date(Long.parseLong(XmlUtil.getCurrentLevelTextValue(stats,



"Timestamp")))+ "</td>" having an out parameter,

"<td>"+XmlUtil.getCurrentLevelTextValue(stats, "Status")+"</td>" having an out parameter, "<td><form action=\"\" method=\"POST\"><input type='hidden' name='Url' value=\""+endpoint+"\"><input type='submit' value='Clear API Stats' name='ClearAPIStats'/></form></td>" having an out parameter, "<td><form action=\"\" method=\"POST\"><input type='hidden' name='Host' value=\""+host+"\"><input type='submit' value='Remove Record' name='RemoveRecord'/></form></td>" having an out parameter and "<td><a href='/webui/cmbcallstats'>Stats</a></td>" having an out parameter;

- 3) the first element of the array expression "<td>"+new Date(Long.parseLong(XmlUtil.getCurrentLevelTextValue(stats, "ProducerTimestamp")))+ "</td>" is defined within a PrintWriter println() statement having an out parameter;
- 4) the first element of the array expression "<td>"+new Date(Long.parseLong(XmlUtil.getCurrentLevelTextValue(stats, "ConsumerTimestamp")))+ "</td>" is defined within a PrintWriter println() statement having an out parameter;
- 5) the first element of the array expression "<td>"+new Date(Long.parseLong(XmlUtil.getCurrentLevelTextValue(stats, "Timestamp")))+ "</td>" is defined within a PrintWriter println() statement having an out parameter;
- 6) the first element of the array expression if (endpointErrorCounts.size() > 0) { is defined within PrintWriter println() statements Failed or timed out Responses during past 60 Seconds by Endpoint having an out parameter and "<tr><th>Endpoint</th><th>Error Count</th><th><th>" having an out parameter;

- 7) the first element of the array expression for (String endpoint :  
`endpointErrorCounts.keySet()` { is defined within `PrintWriter println()` statements  
`"<td>"+endpoint+"</td>"` having an out parameter and  
`"<td>"+endpointErrorCounts.get(endpoint)+"</td>"` having an out parameter;
- 8) the first element of the array expression if (`aggregateCallStats.keySet().size() > 0`)  
{ is defined within a `PrintWriter println()` statement `CNS Call Stats` having an out  
parameter;
- 9) the first element of the array expression for (String action :  
`aggregateCallStats.keySet()` { is defined within a `PrintWriter println()` statement  
`"<tr><td>"+action+"</td><td>"+aggregateCallStats.get(action)+"</td></tr>"`  
having an out parameter;
- 10) the first element of the array expression if  
(`aggregateCallFailureStats.keySet().size() > 0`) {is defined within a `PrintWriter  
println()` statement `CNS Call Failure Stats` having an out parameter and
- 11) the first element of the array expression for (String action :  
`aggregateCallFailureStats.keySet()` { is defined within a `PrintWriter println()`  
statement  
`"<tr><td>"+action+"</td><td>"+aggregateCallFailureStats.get(action)+"</td></tr>"`  
`>"` having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cns/controller/>

`CNSWorkerStatePageServlet.java`.

66. Defendant Comcast commits the following acts of infringement of the '425 Patent  
including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said

CNSTopicPermissionPage, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "Permissions for Topic "+  
Util.getNameFromTopicArn(topicArn)+ "" is defined within PrintWriter println()  
statements "<table><tr><td><b>User Name:</b></td><td>"+ user.  
getUserName()+ "</td></tr>" having an out parameter, "<tr><td><b>User  
ID:</b></td><td>"+ user.getId()+ "</td></tr>" having an out parameter,  
"<tr><td><b>Access Key:</b></td><td> "+user.getAccessKey()+ "</td></tr>" having  
an out parameter, "<tr><td><b>Access  
Secret:</b></td><td>"+user.getAccessSecret()+ "</td></tr>" having an out  
parameter, "<tr><td><b>Topic Name:</b></td><td>"+Util.  
getNameFromTopicArn(topicArn)+ "</td></tr>" having an out parameter and  
"<tr><td><b>Topic Arn:</b></td><td> "+topicArn+ "</td></tr></table><br>" having  
an out parameter;

- 2) the first element of the array expression "<tr><td>" + stmt.getEffect().toString()+ "</td><td>" is defined within a PrintWriter println() statement having an out parameter;
- 3) the first element of the array expression for (int i = 0; stmts != null && i < stmts.size(); i++) { is defined within PrintWriter println() statements "<form action=\" /webui/cnsuser/permission/?userId="+user.getUserId()+"&topicArn="+topicArn+"\" method=POST>" having an out parameter and "<tr><td>" + stmt.getEffect().toString()+ "</td><td>" having an out parameter;
- 4) the first element of the array expression for (int k = 0; k < stmt.getPrincipal().size(); k++) { is defined within a PrintWriter println() statement user1+"<br>" having an out parameter;
- 5) the first element of the array expression for (int j = 0; j < stmt.getAction().size(); j++) { is defined within a PrintWriter println() statement action1+"<br>" having an out parameter and
- 6) the first element of the array expression "<p><a href=\"onclick=\"window.open('/webui/cnsuser/addpermission/ ?topicArn=" + topicArn + "&topicName=" + Util.getNameFromTopicArn(topicArn) + "&userId=" + userId + "\", 'AddTopicPermission', 'location=0,menubar=0,scrollbars=0,status=0,titlebar=0,toolbar=0,height=470,width=730')\"> Add permission</a></p>" is defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cns/controller/>

CNSTopicPermissionPage.java.

67. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CNSSubscriptionPageServlet, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "Subscriptions for Topic "+ ((topic != null) ? topic.getName():"")+ "" is defined within PrintWriter println() statements  

```
"<table><tr><td><b>User Name:</b></td><td>" + user.getUserName()+
"</td></tr>" having an out parameter, "<tr><td><b>User ID:</b></td><td>" +
user.getUserId()+"</td></tr>" having an out parameter, "<tr><td><b>Access
Key:</b></td><td>" + user.getAccessKey()+" </td></tr>" having an out parameter,
"<tr><td><b>Access Secret:</b></td><td> "+user.getAccessSecret()+" </td></tr>"
having an out parameter, "<tr><td><b>Topic Name:</b></td><td>" +
topic.getName()+" </td></tr>" having an out parameter, "<tr><td><b>Topic Display
Name:</b></td><td>" + topic. getDisplayName()+" </td></tr>" having an out
```

- parameter, "<tr><td><b>Topic Arn:</b></td><td>" + topic.getArn()+ "</td></tr>" having an out parameter and "<tr><td><b>Num Subscriptions:</b></td><td>" + subscriptions.size()+ "</td></tr></table>" having an out parameter;
- 2) the first element of the array expression "<form action=\"/webui/cnsuser/subscription/?userId="+user.getUserId()+"&arn="+s.getSubscriptionArn()+"&topicArn="+topicArn+"\" method=POST>" is defined within a PrintWriter println() statement having an out parameter;
- 3) the first element of the array expression "<td>"+i+"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 4) the first element of the array expression "<td>"+s.getSubscriptionArn()+"<input type='hidden' name='arn' value="+s.getSubscriptionArn()+"></td>" is defined within a PrintWriter println() statement having an out parameter;
- 5) the first element of the array expression "<td>"+s.getProtocol()+"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 6) the first element of the array expression "<td><a href=\"/webui/cqsuser?userId="+Util.getUserIdForQueueArn(s.getEndpoint())+">"+s.getEndpoint()+"</a></td>" is defined within a PrintWriter println() statement having an out parameter;
- 7) the first element of the array expression "<td>"+s.getEndpoint()+"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 8) the first element of the array expression "<td><a href='#' onclick=\"window.open('/webui/cnsuser/subscription/"

- editdeliverypolicy?subscriptionArn="+ s.getSubscriptionArn() + "&userId=" + userId + "", 'EditDeliveryPolicy', 'height=630,width=580,toolbar=no')\ ">View/Edit Delivery Policy</a></td>" is defined within a PrintWriter println() statement having an out parameter;
- 9) the first element of the array expression "<td><a href='#' onclick=\"window.open('"+ url + "", 'RawMessageDelivery', 'height=200,width=580,toolbar=no')\">Raw Message Delivery</a></td>" is defined within a PrintWriter println() statement having an out parameter;
- 10) the first element of the array expression for (int i = 0; subscriptions != null && i < subscriptions.size(); i++) { is defined within PrintWriter println() statements "<form action=\"/webui/cnsuser/subscription/?userId="+user.getUserId()+"&arn="+s.getSubscriptionArn()+"&topicArn="+topicArn+"\" method=POST>" having an out parameter, "<td>"+i+"</td>" having an out parameter, "<td>"+s.getSubscriptionArn() + "<input type='hidden' name='arn' value="+s.getSubscriptionArn()+ "></td>" having an out parameter, "<td>"+s.getProtocol()+"</td>" having an out parameter, "<td><a href=\"/webui/cqsuser?userId="+Util.getUserIdForQueueArn(s.getEndpoint())+" ">"+s.getEndpoint()+"</a></td>" having an out parameter and "<td>"+s.getEndpoint()+"</td>" having an out parameter and
- 11) the first element of the array expression "<p><a href=\"/webui/cnsuser/subscription/?userId= "+userId+" &topicArn="+topicArn+"&nextToken="+response.encodeURL(listSubscriptionsByTopicResult.getNextToken())+" ">next&nbsp;&gt;</a></p>" is defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cns/controller/CNSSubscriptionPageServlet.java>.

68. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CQSQueueMessagesPageServlet, as documented in the following numbered subparagraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

1) the first element of the array expression "Peek Messages for Queue " + queueName + "" is defined within PrintWriter println() statements "<table><tr><td><b>User Name:</b></td><td>"+ user.getUserName()+" </td></tr>" having an out parameter, "<tr><td><b>User ID:</b></td><td>"+ user.getId()+"</td></tr>" having an out parameter, "<tr><td><b>Access Key:</b></td><td>"+user.getAccessKey()+"</td></tr>" having an out parameter, "<tr><td><b>Access Secret:</b></td><td>"+user.getAccessSecret()+" </td></tr>" having an out parameter, "<tr><td><b>Queue Name:</b></td><td>"+queueName+"</td></tr>"



</table>" having an out parameter, "<form id='frm1'  
 action=\" /webui/cqsuser/message/?userId="+userId+"  
 &queueName="+queueName+"\" method=POST>" having an out parameter and  
 <textarea rows='3' cols='50' name='message'></textarea><input type='hidden'  
 name='userId' value='"+ userId + "'></td><td valign='bottom'><input type='submit'  
 value='Send' name='Send' /></td></tr></form>" having an out parameter;

2) the first element of the array expression "<form id='frm2'  
 action=\" /webui/cqsuser/message/?userId="+userId+"  
 &queueName="+queueName+"\" method=POST>" is defined within a PrintWriter  
 println() statement having an out parameter;

3) the first element of the array expression for (int i=0; i<numberOfShards; i++) { is  
 defined within a PrintWriter print() statement "<option value='" + i + "'" having an out  
 parameter, a PrintWriter print() statement " selected" having an out parameter and a  
 PrintWriter println() statement ">" + i + "</option>" having an out parameter;

4) the first element of the array expression "<form id='formsendmessage'  
 action=\" /webui/cqsuser/message/?userId=  
 "+userId+"&queueName="+queueName+"\" method=POST>" is defined within a  
 PrintWriter println() statement having an out parameter;

5) the first element of the array expression "<td><input type='hidden' name='userId'  
 value='"+ userId + "'></td><td valign='bottom'><input type='submit' value='Receive  
 Message' name='Receive' /></td>" is defined within a PrintWriter println() statement  
 having an out parameter;

- 6) the first element of the array expression "<td>" +  
receivedMessage.getReceiptHandle() + "</td>" is defined within a PrintWriter  
println() statement having an out parameter;
- 7) the first element of the array expression "<td>" +  
receivedMessage.getMD5OfBody() + "</td>" is defined within a PrintWriter println()  
statement having an out parameter;
- 8) the first element of the array expression "<td>"+ receivedMessage.getBody() +  
"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 9) the first element of the array expression "<td>"+  
receivedMessage.getMessageAttributes().size() + "</td>" is defined within a  
PrintWriter println() statement having an out parameter;
- 10) the first element of the array expression "<td>"+ timeSent + "</td>" is defined  
within a PrintWriter println() statement having an out parameter;
- 11) the first element of the array expression "<td>"+ timeReceived + "</td>" is  
defined within a PrintWriter println() statement having an out parameter;
- 12) the first element of the array expression "<td>"+  
attributes.get("ApproximateReceiveCount") + "</td>" is defined within a PrintWriter  
println() statement having an out parameter;
- 13) the first element of the array expression "<td>"+ attributes.get("SenderId") +  
"</td>" is defined within a PrintWriter println() statement having an out parameter;
- 14) the first element of the array expression "<td><form  
action=\"/\webui/cqsuser/message/?userId=  
"+user.getUserId()+"&queueName="+queueName+"&receiptHandle="+receivedMess

age.getReceiptHandle()+"\" method=POST><input type='submit' value='Delete'  
 name='Delete'/><input type='hidden' name='queueUrl' value='"+ queueUrl+ "  
 /></form></td></tr>" is defined within a PrintWriter println() statement having an out  
 parameter;

15) the first element of the array expression "<td>" + i + "</td>" is defined within a  
 PrintWriter println() statement having an out parameter;

16) the first element of the array expression "<td>" + message.getReceiptHandle() +  
 "</td>" is defined within a PrintWriter println() statement having an out parameter;

17) the first element of the array expression "<td>" + message.getMD5OfBody() +  
 "</td>" is defined within a PrintWriter println() statement having an out parameter;

18) the first element of the array expression "<div id='detail'+i+\"" style=\"display:  
 none;\">>" + messageBodyPart2 + "</div>" is defined within a PrintWriter println()  
 statement having an out parameter;

19) the first element of the array expression "<input type=button name=type  
 id='bt'+i+\"" value='More' onclick=\"setVisibility('detail'+ i+\"", 'bt'+i+\"");\";> " is  
 defined within a PrintWriter println() statement having an out parameter;

20) the first element of the array expression "<td>" + message.getBody() + "</td>" is  
 defined within a PrintWriter println() statement having an out parameter;

21) the first element of the array expression "<td>" +  
 (message.getMessageAttributes() == null ? 0 : message.getMessageAttributes().size())  
 + "</td>" is defined within a PrintWriter println() statement having an out parameter;

22) the first element of the array expression "<a style='float:left;'  
 href='/webui/cqsuser/message/?userId="

" +user.getUserId()+"&queueName="+queueName+"&nextHandle="+previousHandle  
 +"">Prev</a>" is defined within a PrintWriter println() statement having an out  
 parameter and

23) the first element of the array expression "<a style='float:right;'

href='/webui/cqsuser/message/?userId=

" +user.getUserId()+"&queueName="+queueName+"&prevHandle="+nextHandle+" ">

Next</a>" is defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/>

CQSQueueMessagesPageServlet.java.

69. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CQSAddQueuePermissionPage, as documented in the following numbered subparagraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "Add Permission to Queue "+ queueName + "" is defined within PrintWriter println() statements "<form action=\" /webui/cqsuser/addpermission/? queueName= "+queueName+"\" method=POST>" having an out parameter, "<input type='hidden' name='userId' value='\"+userId +\">" having an out parameter, "<tr><td><b>Principal:</b></td><td><input type='text' name='users' size=80 id='users' value='\" + (users == null ? \"\" : users) +\">" having an out parameter and "<input type='checkbox' name='everybody' \" + (everybody != null ? \"checked\" : \"\") + \" onclick='if(this.checked) { document.getElementById (\"users\").disabled=true;} else { document.getElementById(\"users\").disabled=false;}'>Everybody(\*) </td></tr>" having an out parameter;
- 2) the first element of the array expression "<option value='SendMessage'\" + (actionsList !=null && actionsList.contains(\"SendMessage\") ? \"selected\" : \"\") + ">SendMessage</option>" is defined within a PrintWriter println() statement having an out parameter;
- 3) the first element of the array expression "<option value='ReceiveMessage'\" + (actionsList !=null && actionsList.contains(\"ReceiveMessage\") ? \"selected\" : \"\") + ">ReceiveMessage</option>" is defined within a PrintWriter println() statement having an out parameter;
- 4) the first element of the array expression "<option value='DeleteMessage'\" + (actionsList !=null && actionsList.contains(\"DeleteMessage\") ? \"selected\" : \"\") + ">DeleteMessage</option>" is defined within a PrintWriter println() statement having an out parameter;

- 5) the first element of the array expression "<option value='ChangeMessageVisibility'" + (actionsList !=null && actionsList.contains("ChangeMessageVisibility") ? "selected" : "")) + "> ChangeMessageVisibility</option>" is defined within a PrintWriter println() statement having an out parameter;
- 6) the first element of the array expression "<option value='GetQueueAttributes'" + (actionsList !=null && actionsList.contains("GetQueueAttributes") ? "selected" : "")) + "> GetQueueAttributes</option>" is defined within a PrintWriter println() statement having an out parameter;
- 7) the first element of the array expression "<option value='GetQueueUrl'" + (actionsList !=null && actionsList.contains("GetQueueUrl") ? "selected" : "")) + ">GetQueueUrl</option> </select>" is defined within a PrintWriter println() statement having an out parameter and
- 8) the first element of the array expression "<input type='checkbox' name='allActions' " + (allActions != null ? "checked" : "")) + " onclick='if(this.checked) { document.getElementById (\"actions\").disabled=true; } else { document.getElementById(\"actions\"). disabled=false; }'>All CQS Actions(CQS:\*)</td></tr>" is defined within a PrintWriter println() statement having an out parameter.

See [https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/](https://github.com/Comcast/cmb/blob/master/src/com/comcast/cqs/controller/CQSAddQueuePermissionPage.java)

CQSAddQueuePermissionPage.java.

70. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CNSUserPageServlet, as documented in the following numbered sub-paragraphs,

defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "<table><tr><td><b>User Name:</b></td><td>"+ user.getUserName()+ "</td></tr>" is defined within a PrintWriter println() statement having an out parameter;
- 2) the first element of the array expression "<tr><td><b>User ID:</b></td><td>"+ user.getId()+ "</td></tr>" is defined within a PrintWriter println() statement having an out parameter;
- 3) the first element of the array expression "<tr><td><b>Access Key:</b></td><td>"+user.getAccessKey()+ "</td></tr>" is defined within a PrintWriter println() statement having an out parameter;
- 4) the first element of the array expression "<tr><td><b>Access Secret:</b></td><td>"+user.getAccessSecret()+ "</td>" is defined within a PrintWriter println() statement having an out parameter;

- 5) the first element of the array expression "<tr><td><b>Topic  
Count</b></td><td>"+numTopics+"</td></tr> </table>" is defined within a  
PrintWriter println() statement having an out parameter;
- 6) the first element of the array expression "<form action=\""/webui/cnsuser?userId=" +  
userId + "\" \" + \"method= POST>" is defined within a PrintWriter println()  
statement having an out parameter;
- 7) the first element of the array expression "<tr><td><input type='text' name='topic'  
/></td><td><input type='text' name='display'><input type='hidden' name='userId'  
value='\"+ userId + \"'></td><td> <input type='submit' value='Create' name='Create'  
/></td></tr></form></table></p>" is defined within a PrintWriter println() statement  
having an out parameter;
- 8) the first element of the array expression "<td>"+i+"</td>" is defined within a  
PrintWriter println() statement having an out parameter;
- 9) the first element of the array expression "<td>"+t.getTopicArn()+"<input  
type='hidden' name='arn' value= \"+t.getTopicArn()+"></td>" is defined within a  
PrintWriter println() statement having an out parameter;
- 10) the first element of the array expression  
"<td>"+Util.getNameFromTopicArn(t.getTopicArn())+"</td>" is defined within a  
PrintWriter println() statement having an out parameter;
- 11) the first element of the array expression "<td><a href=" "  
onclick=\"window.open('/webui/cnsuser/editdisplayname? topicArn="+  
t.getTopicArn()+ "&userId="+userId+"', 'EditDisplayName',  
'height=300,width=700,toolbar=no')\">"+(attributes.get("DisplayName") == null ?



"{unset}" : attributes.get("DisplayName"))+"</a></td>" is defined within a  
 PrintWriter println() statement having an out parameter;

12) the first element of the array expression

"<td>"+attributes.get("SubscriptionsPending")+"</td>" is defined within a PrintWriter  
 println() statement having an out parameter;

13) the first element of the array expression

"<td>"+attributes.get("SubscriptionsConfirmed")+"</td>" is defined within a  
 PrintWriter println() statement having an out parameter;

14) the first element of the array expression "<td><a

href='/webui/cnsuser/subscription?userId="+ userId + "&topicArn=" +  
 t.getTopicArn() + "'>Subscriptions</a></td>" is defined within a PrintWriter println()  
 statement having an out parameter;

15) the first element of the array expression "<td><a

href='/webui/cnsuser/publish?userId="+ userId + "&topicArn="+ t.getTopicArn() + "'  
 target='\_blank'>Publish</a></td>" is defined within a PrintWriter println() statement  
 having an out parameter;

16) the first element of the array expression "<td><a href=" onclick=\"window.open

('webui/cnsuser/editdeliverypolicy? topicArn="+ t.getTopicArn() + "&userId=  
 "+userId+"', 'EditDeliveryPolicy', 'height=630,width=580,toolbar=no')\">View/Edit  
 Topic Delivery Policy</a></td>" is defined within a PrintWriter println() statement  
 having an out parameter;

17) the first element of the array expression "<td><a

href='/webui/cnsuser/permission?topicArn="+ t.getTopicArn() + "&userId=" + userId

+ ">Permission</a></td>" is defined within a PrintWriter println() statement having an out parameter and

18) the first element of the array expression "<p><a

href='/webui/cnsuser?userId="+userId+"&nextToken=

"+response.encodeURL(listTopicResult.getNextToken())+">next&nbsp;&gt;</a></p

>" is defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cns/controller/>

CNSUserPageServlet.java.

71. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CNSEditTopicDisplayNamePage, as documented in the following numbered subparagraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "<form action=\"/webui/cnsuser/editdisplayname?topicArn= "+topicArn+"\" method=POST>" is defined within a PrintWriter println() statement having an out parameter;
- 2) the first element of the array expression "<input type='hidden' name='userId' value='"+ userId +"'>" is defined within a PrintWriter println() statement having an out parameter and
- 3) the first element of the array expression "<p><b>Display Name:</b> <input type='text' name='displayName' size='100' value= '" + (attributes.get("DisplayName") == null ? "" : attributes. get("DisplayName")) + "'></p>" is defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cns/controller/CNSEditTopicDisplayNamePage.java>.

72. Defendant Comcast commits the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said CNSRawMessageDeliveryPolicyPage, as documented in the following numbered subparagraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array

expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "<form action=\"/webui/cnsuser/subscription/rawmessagedeliverypolicy?subscriptionArn="+subArn+"\" method=POST>" is defined within a PrintWriter println() statement having an out parameter and
- 2) the first element of the array expression "<input type='hidden' name='userId' value='"+ userId +"'>" is defined within a PrintWriter println() statement having an out parameter.

See <https://github.com/Comcast/cmb/blob/master/src/com/comcast/cns/controller/CNSRawMessageDeliveryPolicyPage.java>.

**COUNT II: DEFENDANTS AMAZON, CABLEVISION, DISNEY, HP, HULU, iHEARTMEDIA, JELLI, KATZ MEDIA, NBCUNIVERSAL, NETFLIX, SAMSUNG, SEACHANGE INTERNATIONAL AND THE WEATHER CHANNEL INFRINGEMENT OF U.S. PATENT 8,713,425**

73. Plaintiff re-alleges paragraphs 1-47 as if fully set forth herein.
74. Defendants Amazon, Cablevision, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel have been and are now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalents, the '425 Patent in this judicial district and elsewhere.

75. Said predetermined printable output of said first element of the array printed via the PrintWriter includes AWS cloud network usage monitoring information such as performance and advertising metrics, web statistics and cost control information.
76. Said predetermined printable output of said first element of the array printed via the PrintWriter includes cloud-based content information such as predetermined program material represented by program signals representative of predetermined program material.
77. Defendants Amazon, Cablevision, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's acts of infringement of the '425 Patent further include encoding, transmitting, receiving and processing said PrintWriter hyperlink address string in conjunction with program signals representative of predetermined program material.
78. Defendants Amazon, Cablevision, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel, individually in their respective systems, services and products, have committed and continue to commit acts of infringement of the '425 Patent by marketing, leasing and/or selling a receiver apparatus for receiving and processing program-related signals including said PrintWriter hyperlink address string in conjunction with program signals representative of predetermined program material.
79. Defendant Amazon has committed and continue to commit acts of infringement of the '425 Patent by marketing, leasing and/or selling its Fire TV ASAP receiver apparatus for receiving and processing program-related signals including said PrintWriter hyperlink

address string in conjunction with program signals representative of predetermined program material.

80. Defendant Amazon has committed and continue to commit acts of infringement of the '425 Patent by marketing, leasing and/or selling its Kinesis stream system and service for transmitting, receiving and processing program-related signals including said PrintWriter hyperlink address string in conjunction with program signals representative of predetermined program material.
81. Defendant Samsung has committed and continue to commit acts of infringement of the '425 Patent by marketing, leasing and/or selling its Amazon Cloud Player receiver apparatus and Smart Hub system for receiving and processing program-related signals including said PrintWriter hyperlink address string in conjunction with program signals representative of predetermined program material.
82. Defendants Amazon, Cablevision, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 comprise generating a PrintWriter Hyperlink Address String defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array

expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression.

**COUNT III: DEFENDANTS BRIGHT HOUSE NETWORKS, CABLEVISION,  
CHARTER COMMUNICATIONS, COMCAST AND TIME WARNER  
INFRINGEMENT OF U.S. PATENT 8,713,425**

83. Plaintiff re-alleges paragraphs 1-47 as if fully set forth herein.
84. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner, individually in their respective cable television networks, have been and are now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalents, the '425 Patent in this judicial district and elsewhere.
85. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner, individually in their respective cable television networks, have committed and continue to commit acts of infringement of the '425 Patent by marketing, leasing and/or selling a receiver apparatus for receiving and processing program-related signals including said PrintWriter hyperlink address string in conjunction with program signals representative of predetermined program material.
86. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner infringe the '425 Patent by public class HConfig generating in their respective cable television networks PrintWriter statements for HAVi screen debugging with for loop or equivalent array expression such as enhanced for loop that print via the

PrintWriter the first element, said resource in the initial array position, in the array expression.

87. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner, individually in their respective cable television networks, commit the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 5, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said public class HConfig, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

- 1) the first element of the array expression "Screen[" + i + "]" + screens is defined within a PrintWriter println() statement having an out parameter;
- 2) the first element of the array expression "Background[" + i + "]" is defined within a PrintWriter println() statement having an out parameter;
- 3) the first element of the array expression "Video[" + i + "]" is defined within a PrintWriter println() statement having an out parameter;



- 4) the first element of the array expression "Graphics[" + i + "]" is defined within a `PrintWriter println()` statement having an out parameter;
- 5) the first element of the array expression "VideoOutputPorts..." is defined within a `PrintWriter println()` statement having an out parameter;
- 6) the first element of the array expression `indent + port` is defined within a `PrintWriter println()` statement having an out parameter;
- 7) the first element of the array expression `indent + TAB + "type = " + portType(port)` is defined within a `PrintWriter println()` statement having an out parameter;
- 8) the first element of the array expression `indent + TAB + "enabled = " + port.status()` is defined within a `PrintWriter println()` statement having an out parameter;
- 9) the first element of the array expression `indent + TAB + "hdcp = " + port.queryCapability (VideoOutputPort.CAPABILITY_TYPE_HDCP)` is defined within a `PrintWriter println()` statement having an out parameter;
- 10) the first element of the array expression `indent + TAB + "dtcp = " + port.queryCapability (VideoOutputPort.CAPABILITY_TYPE_DTCP)` is defined within a `PrintWriter println()` statement having an out parameter;
- 11) the first element of the array expression `indent + TAB + "restriction = "+port.queryCapability (VideoOutputPort.CAPABILITY_TYPE_RESOLUTION_RESTRICTION)` is defined within a `PrintWriter println()` statement having an out parameter;
- 12) the first element of the array expression `indent + "BackgroundDevice[" + i + "]" + bg` is defined within a `PrintWriter println()` statement having an out parameter;

- 13) the first element of the array expression indent + "The default bg device is BackgroundDevice[" + i + "]" is defined within a PrintWriter println() statement having an out parameter;
- 14) the first element of the array expression indent + "VideoDevice[" + i + "]" + video[i] is defined within a PrintWriter println() statement having an out parameter;
- 15) the first element of the array expression indent + "The default video device is VideoDevice[" + i + "]" is defined within a PrintWriter println() statement having an out parameter;
- 16) the first element of the array expression indent + "Found " + gfx.length + " gfx devices[i]..." is defined within a PrintWriter println() statement having an out parameter;
- 17) the first element of the array expression indent + "GraphicsDevice[" + i + "]" + gfx[i] is defined within a PrintWriter println() statement having an out parameter;
- 18) the first element of the array expression indent + "The default gfx device is GraphicsDevice[" + [i] + "]" is defined within a PrintWriter println() statement having an out parameter;
- 19) the first element of the array expression indent + "id = " + device.getIDstring() is defined within a PrintWriter println() statement having an out parameter;
- 20) the first element of the array expression indent + "aspect ratio = " + aspectRatio(device. getScreen[i] AspectRatio()) is defined within a PrintWriter println() statement having an out parameter;
- 21) the first element of the array expression indent + "The " + name + " config is config[" + i + "]" is defined within a PrintWriter println() statement having an out parameter;

- 22) the first element of the array expression indent + "The " + name[i] + " config is..." is defined within a PrintWriter println() statement having an out parameter;
- 23) the first element of the array expression indent + "Found " + configs.length + " bg configs[i]..." is defined within a PrintWriter println() statement having an out parameter;
- 24) the first element of the array expression indent + "BG Config[" + i + "]" + configs[i] is defined within a PrintWriter println() statement having an out parameter;
- 25) the first element of the array expression indent + "Found " + configs.length + " video configs[i]..." is defined within a PrintWriter println() statement having an out parameter;
- 26) the first element of the array expression indent + "Video Config[" + i + "]" + configs[i] is defined within a PrintWriter println() statement having an out parameter;
- 27) the first element of the array expression indent + "Found " + configs.length + " gfx configs[i]..." is defined within a PrintWriter println() statement having an out parameter;
- 28) the first element of the array expression indent + "Gfx Config[" + i + "]" + configs[i] is defined within a PrintWriter println() statement having an out parameter;
- 29) the first element of the array expression indent + "flickerFilter = " + config.getFlickerFilter() is defined within a PrintWriter println() statement having an out parameter;
- 30) the first element of the array expression indent + "interlaced = " + config.getInterlaced() is defined within a PrintWriter println() statement having an out parameter;
- 31) the first element of the array expression indent + "pixel aspect ratio = " + aspectRatio(config.getPixelAspectRatio()) is defined within a PrintWriter println() statement having an out parameter;

32) the first element of the array expression indent + "resolution = " + resolution(config.getPixelResolution()) is defined within a PrintWriter println() statement having an out parameter;

33) the first element of the array expression indent + "screenArea = " + area(config.getScreenArea()) is defined within a PrintWriter println() statement having an out parameter and

34) the first element of the array expression indent + "color = " + bgConfig.getColor() is defined within a PrintWriter println() statement having an out parameter.

See [https://community.cablelabs.com/svn/OCAPRI/trunk/ri/RI\\_Stack/apps/config/org/cablelabs/xlet/config/HConfig.java](https://community.cablelabs.com/svn/OCAPRI/trunk/ri/RI_Stack/apps/config/org/cablelabs/xlet/config/HConfig.java).

**COUNT IV: DEFENDANTS BRIGHT HOUSE NETWORKS, CABLEVISION,  
CHARTER COMMUNICATIONS, COMCAST AND TIME WARNER  
INFRINGEMENT OF U.S. PATENT 8,713,425**

88. Plaintiff re-alleges paragraphs 1-47 as if fully set forth herein.

89. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner, individually in their respective cable television networks, have been and are now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalents, the '425 Patent in this judicial district and elsewhere.

90. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner, individually in their respective cable television networks, infringe the '425 Patent by a jdpwGen node generating said PrintWriter hyperlink address string structured as a PrintWriter method having a writer parameter to provide hyperlink access

via for loop or equivalent array expression such as enhanced for loop to resources uniquely identified by resource identifiers, including a resource in the initial array position of said array expression, for remote java debugging wherein said hyperlink access prints to screen predetermined printable output of said resource in the initial array position of said array expression via the print() or println() method of the PrintWriter.

91. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner, individually in their respective cable television networks, commit the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 6, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said said jdwpGen node, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

AbstractCommandNode

- 1) the first element of the array expression "<h5><a name=\"\" + context.whereC + \"\">\" + name + \" Command</a> (\" + nameNode.value() + \"</h5>\" is defined within a PrintWriter println() statement having a writer parameter;

- 2) the first element of the array expression "<dl>"); for (Iterator it = components.iterator(); it.hasNext();) { ((Node)it.next()).document(writer); } "</dl>" is defined within a PrintWriter println() statement having a writer parameter;
- 3) the first element of the array expression "<li><a href=\"#" + context.whereC + "\">" is defined within a PrintWriter print() statement having a writer parameter and
- 4) the first element of the array expression name() + "</a> (" + nameNode.value() + ")" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractCommandNode.java? p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractCommandNode.java? p=20423).

#### AbstractGroupNode

- 1) the first element of the array expression "void write(PacketStream ps) {";  
genJavaWrites(writer, depth+1); indent(writer, depth); writer.println("}" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractGroupNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractGroupNode.java?p=20423).

#### AbstractNamedNode

- 1) the first element of the array expression "<h4><a name=" + name + ">" + name + "Command Set</a></h4>" is defined within a PrintWriter println() statement having a writer parameter and

- 2) the first element of the array expression `"}");writer.println("#define " + context.whereC + " " + nameNode.value()` is defined within a `PrintWriter println()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractNamedNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractNamedNode.java?p=20423).

#### AbstractTypeListNode

- 1) the first element of the array expression `"<dt>" + name() + " Data"` is defined within a `PrintWriter println()` statement having a writer parameter;
- 2) the first element of the array expression `className + "(VirtualMachineImpl vm, PacketStream ps) {"` is defined within a `PrintWriter println()` statement having a writer parameter;
- 3) the first element of the array expression `className + "(" + javaParams() + ")" {"` is defined within a `PrintWriter println()` statement having a writer parameter;
- 4) the first element of the array expression `"this." + tn.name() + " = " + tn.name() + ";` is defined within a `PrintWriter println()` statement having a writer parameter and
- 5) the first element of the array expression `"this." + tn.name() + " = " + tn.name() + ";` is defined within a `PrintWriter println()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractTypeListNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractTypeListNode.java?p=20423).

#### AbstractTypeNode

- 1) the first element of the array expression "<td colspan=" + (maxStructIndent - structIndent) + ">" is defined within a PrintWriter println() statement having a writer parameter and
- 2) the first element of the array expression docType() + "<td><i>" + name() + "</i><td>" + comment() + "&nbsp;" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AbstractTypeNode.java?p=20423).

#### AltNode

- 1) the first element of the array expression "<td colspan=" + (maxStructIndent - structIndent + 1) + ">" is defined within a PrintWriter println() statement having a writer parameter;
- 2) the first element of the array expression "Case " + nameNode.name + " - if <i>" + ((SelectNode)parent).typeName.name + "</i> is " + nameNode.value() + ":" is defined within a PrintWriter println() statement having a writer parameter;
- 3) the first element of the array expression " ALT\_ID = " + nameNode.value() + ";" is defined within a PrintWriter println() statement having a writer parameter;
- 4) the first element of the array expression select.typeNode.javaParam() + "()" { " is defined within a PrintWriter println() statement having a writer parameter;
- 5) the first element of the array expression "case " + nameNode.value() + ":" is defined within a PrintWriter println() statement having a writer parameter;



- 6) the first element of the array expression `common + " = new " + name + "(vm, ps);` is defined within a `PrintWriter println()` statement having a writer parameter;
- 7) the first element of the array expression `"static " + select.name() + " create(")` is defined within a `PrintWriter print()` statement having a writer parameter;
- 8) the first element of the array expression `javaParams()` is defined within a `PrintWriter print()` statement having a writer parameter;
- 9) the first element of the array expression `"return new " + select.name() + "(")` is defined within a `PrintWriter print()` statement having a writer parameter;
- 10) the first element of the array expression `"ALT_ID, new " + javaClassName() + "("` is defined within a `PrintWriter print()` statement having a writer parameter and
- 11) the first element of the array expression `tn.name()` is defined within a `PrintWriter print()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/)

[OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AltNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/AltNode.java?p=20423).

#### BooleanTypeNode

- 1) the first element of the array expression `"ps.writeBoolean(" + writeLabel + ");"` is defined within a `PrintWriter println()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/BooleanTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/BooleanTypeNode.java?p=20423).

#### ByteTypeNode

- 1) the first element of the array expression `"ps.writeByte(" + writeLabel + ");"` is defined within a `PrintWriter println()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ByteTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ByteTypeNode.java?p=20423).

### CommandNode

- 1) the first element of the array expression "static final int COMMAND = " + nameNode.value() + ";" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/CommandNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/CommandNode.java?p=20423).

### CommandSetNode

- 1) the first element of the array expression "<h4><a name=\"\" + context.whereC + \">\" + name + \" Command Set</a> (\" + nameNode.value() + \")</h4>" is defined within a PrintWriter println() statement having a writer parameter;
- 2) the first element of the array expression "<li><a href=\"\" + context.whereC + \">\" is defined within a PrintWriter print() statement having a writer parameter;
- 3) the first element of the array expression name() + "</a> Command Set (\" + nameNode.value() + \")" is defined within a PrintWriter println() statement having a writer parameter;
- 4) the first element of the array expression "static final int COMMAND\_SET = " + nameNode.value() + ";" is defined within a PrintWriter println() statement having a writer parameter and

- 5) the first element of the array expression "private " + name() + "() {} // hide constructor" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/CommandSetNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/CommandSetNode.java?p=20423).

#### ConstantNode

- 1) the first element of the array expression "static final int " + name + " = " + nameNode.value() + ";" is defined within a PrintWriter println() statement having a writer parameter and
- 2) the first element of the array expression "<tr><td>" + name + "<td>" + nameNode.value() + "<td>" + comment() + " &nbsp;" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ConstantNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ConstantNode.java?p=20423).

#### ConstantSetNode

- 1) the first element of the array expression "<h4><a name=\"" + context.whereC + "\">" + name + " Constants</a></h4>" is defined within a PrintWriter println() statement having a writer parameter;
- 2) the first element of the array expression "<a NAME=\"" + name + "\_" + n.name + "\"></a>" is defined within a PrintWriter println() statement having a writer parameter;

- 3) the first element of the array expression "<li><a href=\"#" + context.whereC + "\">" is defined within a PrintWriter print() statement having a writer parameter and
- 4) the first element of the array expression name() + "</a> Constants" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ConstantSetNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ConstantSetNode.java?p=20423).

#### ErrorNode

- 1) the first element of the array expression "<tr><td>" + "<a href=\"#" + NAME\_OF\_ERROR\_TABLE + "\_" + name + "\">" + name + "</a></td>" + "<td>" + com + "&nbsp;</td></tr>" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ErrorNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ErrorNode.java?p=20423).

#### ErrorSetNode

- 1) the first element of the array expression "<dt>" + "Error Data" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ErrorSetNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ErrorSetNode.java?p=20423).

#### FieldTypeNode

- 1) the first element of the array expression "ps.writeFieldRef(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/FieldTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/FieldTypeNode.java?p=20423).

#### FrameTypeNode

- 1) the first element of the array expression "ps.writeFrameRef(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/FrameTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/FrameTypeNode.java?p=20423).

#### IntTypeNode

- 1) the first element of the array expression "ps.writeInt(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/IntTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/IntTypeNode.java?p=20423).

#### LocationTypeNode

- 1) the first element of the array expression "ps.writeLocation(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/LocationTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/LocationTypeNode.java?p=20423).

#### LongTypeNode

- 1) the first element of the array expression "ps.writeLong(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/LongTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/LongTypeNode.java?p=20423).

### MethodTypeNode

- 1) the first element of the array expression "ps.writeMethodRef(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/MethodTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/MethodTypeNode.java?p=20423).

### Node

- 1) the first element of the array expression " \* " + (String)it.next() is defined within a PrintWriter println() statement having a writer parameter;
- 2) the first element of the array expression "if ((ps.vm.traceFlags & VirtualMachineImpl.TRACE\_SENDS) != 0) {" is defined within a PrintWriter println() statement having a writer parameter;
- 3) the first element of the array expression "ps.vm.printTrace(\"Sending: " is defined within a PrintWriter print() statement having a writer parameter;
- 4) the first element of the array expression writeLabel + "(" + javaType() + "): \" + " is defined within a PrintWriter print() statement having a writer parameter;
- 5) the first element of the array expression displayValue + ");" is defined within a PrintWriter println() statement having a writer parameter;
- 6) the first element of the array expression "if (vm.traceReceives) {" is defined within a PrintWriter println() statement having a writer parameter;
- 7) the first element of the array expression "vm.printReceiveTrace(" + depth + ", \"") is defined within a PrintWriter print() statement having a writer parameter and

- 8) the first element of the array expression `displayValue + ");"` is defined within a `PrintWriter println()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/Node.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/Node.java?p=20423).

#### OutNode

- 1) the first element of the array expression `"static " + cmdName + "`  
`process(VirtualMachineImpl vm"` is defined within a `PrintWriter print()` statement having a writer parameter;
- 2) the first element of the array expression `tn.javaParam()` is defined within a `PrintWriter print()` statement having a writer parameter;
- 3) the first element of the array expression `"throws JDWPException {"` is defined within a `PrintWriter println()` statement having a writer parameter;
- 4) the first element of the array expression `"PacketStream ps = enqueueCommand(vm"` is defined within a `PrintWriter print()` statement having a writer parameter;
- 5) the first element of the array expression `tn.name()` is defined within a `PrintWriter print()` statement having a writer parameter;
- 6) the first element of the array expression `"static PacketStream  
enqueueCommand(VirtualMachineImpl vm"` is defined within a `PrintWriter print()` statement having a writer parameter;
- 7) the first element of the array expression `tn.javaParam()` is defined within a `PrintWriter print()` statement having a writer parameter;

- 8) the first element of the array expression "PacketStream ps = new PacketStream(vm, COMMAND\_SET, COMMAND);" is defined within a PrintWriter println() statement having a writer parameter;
- 9) the first element of the array expression "if ((vm.traceFlags & vm.TRACE\_SENDS) != 0) {" is defined within a PrintWriter println() statement having a writer parameter;
- 10) the first element of the array expression "vm.printTrace(\"Sending Command(id=\" + ps.pkt.id + \") \" is defined within a PrintWriter print() statement having a writer parameter;
- 11) the first element of the array expression "\"+(ps.pkt.flags!=0?\", FLAGS=\" + ps.pkt.flags:\")\"));" is defined within a PrintWriter println() statement having a writer parameter;
- 12) the first element of the array expression "static " + cmdName + " waitForReply(VirtualMachineImpl vm, " + "PacketStream ps)" is defined within a PrintWriter println() statement having a writer parameter and
- 13) the first element of the array expression "return new " + cmdName + "(vm, ps);" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/OutNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/OutNode.java?p=20423).

#### ReferenceIDTypeNode

- 1) the first element of the array expression "ps.writeClassRef(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.



See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ReferenceIDTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ReferenceIDTypeNode.java?p=20423).

#### ReferenceTypeNode

- 1) the first element of the array expression "ps.writeClassRef(" + writeLabel + ".ref());" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ReferenceTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ReferenceTypeNode.java?p=20423).

#### RepeatNode

- 1) the first element of the array expression "int<td><i>" + name + "</i><td>" + comment() + "&nbsp;" is defined within a PrintWriter println() statement having a writer parameter;
- 2) the first element of the array expression "Repeated <i>" + name + "</i> times:" is defined within a PrintWriter println() statement having a writer parameter;
- 3) the first element of the array expression "ps.writeInt(" + writeLabel + ".length);" is defined within a PrintWriter println() statement having a writer parameter;
- 4) the first element of the array expression "for (int i = 0; i < " + writeLabel + ".length; i++) {" is defined within a PrintWriter println() statement having a writer parameter;
- 5) the first element of the array expression "int " + cntLbl + " = ps.readInt();" is defined within a PrintWriter println() statement having a writer parameter;

- 6) the first element of the array expression `readLabel + " = new " + member.javaType() + "[" + cntLbl + "]"`; is defined within a `PrintWriter println()` statement having a writer parameter and
- 7) the first element of the array expression `"for (int i = 0; i < " + cntLbl + "; i++) {"` is defined within a `PrintWriter println()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/RepeatNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/RepeatNode.java?p=20423).

#### ReplyNode

- 1) the first element of the array expression `"if (vm.traceReceives) {"` is defined within a `PrintWriter println()` statement having a writer parameter;
- 2) the first element of the array expression `"vm.printTrace(\"Receiving Command(id=\" + ps.pkt.id + \") \"` is defined within a `PrintWriter print()` statement having a writer parameter;
- 3) the first element of the array expression `"+(ps.pkt.flags!=0?\", FLAGS=\" + ps.pkt.flags:\"\"))"` is defined within a `PrintWriter print()` statement having a writer parameter and
- 4) the first element of the array expression `"+(ps.pkt.errorCode!=0?\", ERROR CODE=\" + ps.pkt.errorCode:\"\"))"` is defined within a `PrintWriter print()` statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ReplyNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ReplyNode.java?p=20423).

#### RootNode

- 1) the first element of the array expression "<html><head><title>" + comment() + "</title></head>") is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/RootNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/RootNode.java?p=20423).

#### SelectNode

- 1) the first element of the array expression "abstract static class " + commonBaseClass() + " {" is defined within a PrintWriter println() statement having a writer parameter;
- 2) the first element of the array expression "abstract void write(PacketStream ps);" is defined within a PrintWriter println() statement having a writer parameter;
- 3) the first element of the array expression "abstract " + typeNode.javaParam() + "();" is defined within a PrintWriter println() statement having a writer parameter;
- 4) the first element of the array expression commonBaseClass() + commonVar() + ";" is defined within a PrintWriter println() statement having a writer parameter;
- 5) the first element of the array expression className + "(" + typeNode.javaParam() + ", " is defined within a PrintWriter print() statement having a writer parameter;
- 6) the first element of the array expression commonBaseClass() + commonVar() is defined within a PrintWriter print() statement having a writer parameter;
- 7) the first element of the array expression "this." + typeNode.name() + " = " + typeNode.name() + ";" is defined within a PrintWriter println() statement having a writer parameter;

- 8) the first element of the array expression "this." + commonVar() + " = " + commonVar() + ";" is defined within a PrintWriter println() statement having a writer parameter;
- 9) the first element of the array expression commonVar() + ".write(ps);" is defined within a PrintWriter println() statement having a writer parameter and
- 10) the first element of the array expression "switch (" + typeNode.name() + ") {" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/SelectNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/SelectNode.java?p=20423).

#### StringTypeNode

- 1) the first element of the array expression "ps.writeString(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/StringTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/StringTypeNode.java?p=20423).

#### UntaggedValueTypeNode

- 1) the first element of the array expression "ps.writeUntaggedValue(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/UntaggedValueTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/UntaggedValueTypeNode.java?p=20423).

#### ValueTypeNode

- 1) the first element of the array expression "ps.writeValue(" + writeLabel + ");" is defined within a PrintWriter println() statement having a writer parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ValueTypeNode.java?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/ValueTypeNode.java?p=20423).  
See [https://community.cablelabs.com/svn/OCAPRI/tags/stable\\_ctp\\_no\\_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/?p=20423](https://community.cablelabs.com/svn/OCAPRI/tags/stable_ctp_no_upnp/ri/ODLSrc/OCAP-1.0/jvm/Sun/src/share/tools/jpda/classes/com/sun/tools/jdwpngen/?p=20423).

**COUNT V: DEFENDANTS BRIGHT HOUSE NETWORKS, CABLEVISION,  
CHARTER COMMUNICATIONS, COMCAST, SAMSUNG AND TIME WARNER  
INFRINGEMENT OF U.S. PATENT 8,713,425**

92. Plaintiff re-alleges paragraphs 1-47 as if fully set forth herein.
93. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television transmission and/or receiver systems, have been and are now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalents, the '425 Patent in this judicial district and elsewhere.
94. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television transmission and/or receiver systems, infringe the '425 Patent by public class MC generating said PrintWriter hyperlink address string structured as a PrintWriter method having a pw parameter for transport stream directory and file tree building to provide hyperlink access via for loop or equivalent array expression such as enhanced for loop to resources uniquely identified by resource identifiers, including a resource in the initial array position of said array expression, wherein said hyperlink access prints predetermined printable output of said resource in the initial array position of said array expression via the print() or println() method of the Printwriter.

95. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television transmission and/or receiver systems, have committed and continue to commit acts of infringement of the '425 Patent by marketing, leasing and/or selling a receiver apparatus for receiving and processing program-related signals including said PrintWriter hyperlink address string in conjunction with program signals representative of predetermined program material.
96. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television transmission and/or receiver systems, commit the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 7, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said public class MC, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement comprises a print instruction for the PrintWriter to print predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing via the PrintWriter said predetermined printable output of said first element of said array expression:
  - 1) the first element of the array expression "package @ ;", packageName is defined within a PrintWriter printMsg() statement having a pw parameter;

- 2) the first element of the array expression "public class @ extends LogWrapperBase {", className is defined within a PrintWriter printMsg() statement having a pw parameter;
- 3) the first element of the array expression "public @( Logger logger )", className is defined within a PrintWriter printMsg() statement having a pw parameter;
- 4) the first element of the array expression "// Log wrapper class for standard exceptions" is defined within a PrintWriter printMsg() statement having a pw parameter;
- 5) the first element of the array expression "// Log wrapper class for Sun private system exceptions in group @", groupName is defined within a PrintWriter printMsg() statement having a pw parameter;
- 6) the first element of the array expression "import org.omg.CORBA." + e.getName() + " ;" is defined within a PrintWriter printMsg() statement having a pw parameter;
- 7) the first element of the array expression "@ wrapper = ", className is defined within a PrintWriter printMsg() statement having a pw parameter;
- 8) the first element of the array expression "// @", e.getName() is defined within a PrintWriter printMsg() statement having a pw parameter;
- 9) the first element of the array expression "public static final int @ = @ ;", errorName, getBase(groupName, code) is defined within a PrintWriter printMsg() statement having a pw parameter;
- 10) the first element of the array expression "public @ @( CompletionStatus cs, Throwable t@) {", exceptionName, ident, makeDeclArgs(true, numParams) is defined within a PrintWriter printMsg() statement having a pw parameter;

- 11) the first element of the array expression "@ exc = new @( @, cs );", exceptionName, exceptionName, errorName is defined within a PrintWriter printMsg() statement having a pw parameter;
- 12) the first element of the array expression "Object[] parameters = new Object[ @ ];", numParams is defined within a PrintWriter printMsg() statement having a pw parameter;
- 13) the first element of the array expression "parameters[ @ ] = arg@;", a, a is defined within a PrintWriter printMsg() statement having a pw parameter;
- 14) the first element of the array expression "Object[] parameters= null ;" is defined within a PrintWriter printMsg() statement having a pw parameter;
- 15) the first element of the array expression "parameters, @.class, exc )";, className is defined within a PrintWriter printMsg() statement having a pw parameter;
- 16) the first element of the array expression "public @ @( CompletionStatus cs@) {", exceptionName, ident, makeDeclArgs(true, numParams) is defined within a PrintWriter printMsg() statement having a pw parameter;
- 17) the first element of the array expression "public @ @( Throwable t@) {", exceptionName, ident, makeDeclArgs(true, numParams) is defined within a PrintWriter printMsg() statement having a pw parameter;
- 18) the first element of the array expression "return @( CompletionStatus.COMPLETED\_NO, t@ )";, ident, makeCallArgs(true, numParams) is defined within a PrintWriter printMsg() statement having a pw parameter;



19) the first element of the array expression "public @ @( @ ) {", exceptionName, ident, makeDeclArgs(false, numParams) is defined within a PrintWriter printMsg() statement having a pw parameter;

20) the first element of the array expression "return @( CompletionStatus.COMPLETED\_NO, null@) ;", ident, makeCallArgs(true, numParams) is defined within a PrintWriter printMsg() statement having a pw parameter and

21) the first element of the array expression "@.@=\"@: (@) @\"", groupName, ident, getMessageID(groupName, exName, c.getCode()), exName, c.getMessage() is defined within a PrintWriter printMsg() statement having a pw parameter.

See <http://www.docjar.com/html/api/com/sun/tools/corba/se/logutil/MC.java.html>.

**COUNT VI: DEFENDANTS BRIGHT HOUSE NETWORKS, CABLEVISION,  
CHARTER COMMUNICATIONS, COMCAST, SAMSUNG AND TIME WARNER  
INFRINGEMENT OF U.S. PATENT 8,713,425**

97. Plaintiff re-alleges paragraphs 1-47 as if fully set forth herein.

98. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television upnp Home Network systems, services and devices, have been and are now infringing, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalents, the '425 Patent in this judicial district and elsewhere.

99. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television upnp Home Network systems, services and devices, infringe the '425 Patent by an upnp Home

Network node generating said PrintWriter hyperlink address string structured as a PrintWriter method having a ps (PrintStream) parameter to provide hyperlink access via for loop or equivalent array expression such as enhanced for loop to resources uniquely identified by resource identifiers, including a resource in the initial array position of said array expression, wherein said hyperlink access prints to screen predetermined printable output of said resource in the initial array position of said array expression via the print() or println() method of the PrintWriter.

100. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television upnp Home Network systems, services and devices, have committed and continue to commit acts of infringement of the '425 Patent by marketing, leasing and/or selling a receiver apparatus for receiving and processing program-related signals including said PrintWriter hyperlink address string in conjunction with program signals representative of predetermined program material.

101. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast, Samsung and Time Warner, individually in their respective cable television upnp Home Network systems, services and devices, commit the following acts of infringement of the '425 Patent including claims 1, 2, 3, 4, 8, 9, 10, 12, 13, 14, 15, 17, 18, 19, 20, 22, 23 and 24 by said upnp Home Network node, as documented in the following numbered sub-paragraphs, defining within a print() or println() statement of the PrintWriter method a resource in the initial array position, the first element, of an array expression in which resource identifiers uniquely identifying resources corresponding to predetermined program material are arrayed wherein said print() or println() statement

comprises a print instruction for the PrintWriter to print to screen predetermined printable output of said first element of said array expression and processing A) said array expression defined within said print() or println() statement to hyperlink to said first element of said array expression and B) said print instruction for hyperlinking to said first element of said array expression printing to screen via the PrintWriter said predetermined printable output of said first element of said array expression:

#### ContainerNode

- 1) the first element of the array expression " " + ContainerNode.SEARCHABLE + "  
"="\\" is defined within a PrintWriter print() statement having a ps parameter;
- 2) the first element of the array expression  
XML.escapeXMLChars(getProperties().getProperty  
(ContainerNode.SEARCHABLE).getPropertyValue()) + "\" is defined within a  
PrintWriter print() statement having a ps parameter;
- 3) the first element of the array expression " " + ContainerNode.CHILDCOUNT + "  
"="\\" is defined within a PrintWriter print() statement having a ps parameter;
- 4) the first element of the array expression XML.escapeXMLChars(  
Integer.toString(getReferences().length)) + "\" is defined within a PrintWriter print()  
statement having a ps parameter;
- 5) the first element of the array expression "<" + Node.TITLE + ">" is defined within  
a PrintWriter print() statement having a ps parameter;
- 6) the first element of the array expression  
getProperties().getProperty(Node.TITLE).getPropertyValue() is defined within a  
PrintWriter print() statement having a ps parameter;

- 7) the first element of the array expression "</" + Node.TITLE + ">" is defined within a PrintWriter println() statement having a ps parameter;
- 8) the first element of the array expression "<" + Node.UPNPCLASS + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 9) the first element of the array expression  
getProperties().getProperty(Node.UPNPCLASS).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 10) the first element of the array expression "</" + Node.UPNPCLASS + ">" is defined within a PrintWriter println() statement having a ps parameter;
- 11) the first element of the array expression "<" + Node.OCAP\_PERMISSION + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 12) the first element of the array expression  
getProperties().getProperty(Node.OCAP\_PERMISSION).getPropertyValue is defined within a PrintWriter print() statement having a ps parameter and
- 13) the first element of the array expression "</" + Node.OCAP\_PERMISSION + ">" is defined within a PrintWriter println() statement having a ps parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/hn\\_down\\_merged\\_via\\_copy/ri/ODLsrc/OCAP-1.0/java/src/hn/org/cablelabs/impl/ocap/hn/contentdatabase/ContainerNode.java](https://community.cablelabs.com/svn/OCAPRI/tags/hn_down_merged_via_copy/ri/ODLsrc/OCAP-1.0/java/src/hn/org/cablelabs/impl/ocap/hn/contentdatabase/ContainerNode.java).

#### ItemNode

- 1) the first element of the array expression "<" + ItemNode.DATE + ">" is defined within a PrintWriter println() statement having a ps parameter;

- 2) the first element of the array expression "<" + ItemNode.RCILIST + ">" is defined within a PrintWriter println() statement having a ps parameter;
- 3) the first element of the array expression "<" + ItemNode.RESOURCE is defined within a PrintWriter print() statement having a ps parameter;
- 4) the first element of the array expression " " + ItemNode.PROTOCOLINFO + "=\"\" is defined within a PrintWriter print() statement having a ps parameter;
- 5) the first element of the array expression  
getProperties().getProperty(ItemNode.PROTOCOLINFO). getPropertyValue() + "\"\" is defined within a PrintWriter print() statement having a ps parameter;
- 6) the first element of the array expression " " + ItemNode.SIZE + "=\"\" is defined within a PrintWriter print() statement having a ps parameter;
- 7) the first element of the array expression  
getProperties().getProperty(ItemNode.getPropertyValue() + "\"\" is defined within a PrintWriter print() statement having a ps parameter;
- 8) the first element of the array expression  
getProperties().getProperty(ItemNode.URL).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 9) the first element of the array expression "<" + VideoItem.SRSID + ">" is defined within a PrintWriter print() statement having a ps parameter and
- 10) the first element of the array expression  
getProperties().getProperty  
(VideoItem.SRSID).getPropertyValue() is defined within a PrintWriter print()  
statement having a ps parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/hn\\_down\\_merged\\_via\\_copy/ri/ODLSrc/OCAP-1.0/java/src/hn/org/cablelabs/impl/ocap/hn/contentdatabase/ItemNode.java](https://community.cablelabs.com/svn/OCAPRI/tags/hn_down_merged_via_copy/ri/ODLSrc/OCAP-1.0/java/src/hn/org/cablelabs/impl/ocap/hn/contentdatabase/ItemNode.java).

### Node

- 1) the first element of the array expression " " + Node.ID + "=\\" is defined within a  
 PrintWriter print() statement having a ps parameter;
- 2) the first element of the array expression  
 XML.escapeXMLChars(getProperties().getProperty(Node.ID).getPropertyValue()) +  
 "\\\" is defined within a PrintWriter print() statement having a ps parameter;
- 3) the first element of the array expression " " + Node.PARENTID + "=\\" is defined  
 within a PrintWriter print() statement having a ps parameter;
- 4) the first element of the array expression  
 XML.escapeXMLChars(getProperties().getProperty(Node.PARENTID).getProperty  
 Value()) + "\\\" is defined within a PrintWriter print() statement having a ps  
 parameter;
- 5) the first element of the array expression " " + Node.RESTRICTED + "=\\" is defined  
 within a PrintWriter print() statement having a ps parameter;
- 6) the first element of the array expression  
 XML.escapeXMLChars(getProperties().getProperty(Node.RESTRICTED).  
 getPropertyValue()) + "\\\" is defined within a PrintWriter print() statement having a  
 ps parameter;
- 7) the first element of the array expression "<" + Node.TITLE + ">" is defined within a  
 PrintWriter print() statement having a ps parameter;

- 8) the first element of the array expression

`getProperties().getProperty(Node.TITLE).getPropertyValue()` is defined within a

`PrintWriter print()` statement having a `ps` parameter;

- 9) the first element of the array expression `"<" + Node.UPNPCLASS + ">"` is defined

within a `PrintWriter print()` statement having a `ps` parameter;

- 10) the first element of the array expression

`getProperties().getProperty(Node.UPNPCLASS).getPropertyValue()` is defined

within a `PrintWriter print()` statement having a `ps` parameter;

- 11) the first element of the array expression `"<" + Node.OCAP_PERMISSION + ">"` is

defined within a `PrintWriter print()` statement having a `ps` parameter and

- 12) the first element of the array expression

`getProperties().getProperty(Node.OCAP_PERMISSION). getPropertyValue()` is

defined within a `PrintWriter print()` statement having a `ps` parameter.

See [https://community.cablelabs.com/svn/OCAPRI/tags/hn\\_down\\_merged\\_via\\_copy/ri/](https://community.cablelabs.com/svn/OCAPRI/tags/hn_down_merged_via_copy/ri/)

`ODLSrc/OCAP-1.0/java/src/hn/org/cablelabs/impl/ocap/hn/contentdatabase/Node.java`.

#### UPNP Home Network Device, Service & Icon Discovery

- 1) the first element of the array expression `"deviceType = " + getDeviceType()` is

defined within a `PrintWriter println()` statement having a `ps` parameter;

- 2) the first element of the array expression `"friendlyName = " + getFriendlyName()` is

defined within a `PrintWriter println()` statement having a `ps` parameter;

- 3) the first element of the array expression `"presentationURL = " +`

`getPresentationURL()` is defined within a `PrintWriter println()` statement having a `ps`

parameter;

- 4) the first element of the array expression "devList = " + devList.size() is defined within a PrintWriter println() statement having a ps parameter;
- 5) the first element of the array expression "serviceList = " + serviceList.size() is defined within a PrintWriter println() statement having a ps parameter and
- 6) the first element of the array expression "iconList = " + iconList.size() is defined within a PrintWriter println() statement having a ps parameter.

See <https://github.com/cybergarage/cybergarage-upnp/blob/master/core/src/main/java/org/cybergarage/upnp/Device.java>.

#### VideoItem

- 1) the first element of the array expression "<" + VideoItem.TASKID + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 2) the first element of the array expression  
getProperties().getProperty(VideoItem.TASKID).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 3) the first element of the array expression "<" + VideoItem.TASK\_STATE + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 4) the first element of the array expression  
getProperties().getProperty(VideoItem.TASK\_STATE).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 5) " the first element of the array expression "<" + VideoItem.SCHED\_START\_DATE + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 6) the first element of the array expression  
getProperties().getProperty(VideoItem.SCHED\_START\_DATE).



- getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 7) the first element of the array expression "<" + VideoItem.SCHED\_DURATION + ">" is defined within a PrintWriter print() statement having a ps parameter;
  - 8) the first element of the array expression  
 getProperties().getProperty(VideoItem.SCHED\_DURATION). getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
  - 9) the first element of the array expression "<" + VideoItem.SCHED\_CH\_ID + ">" is defined within a PrintWriter print() statement having a ps parameter;
  - 10) the first element of the array expression  
 getProperties().getProperty(VideoItem.SCHED\_CH\_ID).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
  - 11) the first element of the array expression "<" + VideoItem.DESTINATION + ">" is defined within a PrintWriter print() statement having a ps parameter;
  - 12) the first element of the array expression  
 getProperties().getProperty(VideoItem.DESTINATION).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
  - 13) the first element of the array expression "<" + VideoItem.PRI\_FLAG + ">" is defined within a PrintWriter print() statement having a ps parameter;
  - 14) the first element of the array expression  
 getProperties().getProperty(VideoItem.PRI\_FLAG).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;

- 15) the first element of the array expression "<" + VideoItem.RETEN\_PRI + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 16) the first element of the array expression  
getProperties().getProperty(VideoItem.RETEN\_PRI).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 17) the first element of the array expression "<" + Node.OCAP\_PERMISSION + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 18) the first element of the array expression  
getProperties().getProperty(Node.OCAP\_PERMISSION).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 19) the first element of the array expression "<" + VideoItem.ORG\_STRING + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 20) the first element of the array expression  
getProperties().getProperty(VideoItem.ORG\_STRING).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 21) the first element of the array expression "<" + VideoItem.APPID + ">" is defined within a PrintWriter print() statement having a ps parameter;
- 22) the first element of the array expression  
getProperties().getProperty(VideoItem.APPID).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;
- 23) the first element of the array expression "<" + VideoItem.ORGID + ">" is defined within a PrintWriter print() statement having a ps parameter;

24) the first element of the array expression

`getProperties().getProperty(VideoItem.ORGID).getPropertyValue()` is defined within a `PrintWriter print()` statement having a `ps` parameter;

25) the first element of the array expression `"<" + VideoItem.SPACE_REQ + ">"` is

defined within a `PrintWriter print()` statement having a `ps` parameter;

26) the first element of the array expression

`getProperties().getProperty(VideoItem.SPACE_REQ).getPropertyValue()` is defined within a `PrintWriter print()` statement having a `ps` parameter;

27) the first element of the array expression `"<" + VideoItem.CONTENT_URI + ">"` is

defined within a `PrintWriter print()` statement having a `ps` parameter;

28) the first element of the array expression

`getProperties().getProperty(VideoItem.CONTENT_URI).getPropertyValue()` is defined within a `PrintWriter print()` statement having a `ps` parameter;

29) the first element of the array expression `"<" + VideoItem.MEDIA_PRES_POINT +`

`">"` is defined within a `PrintWriter print()` statement having a `ps` parameter;

30) the first element of the array expression

`getProperties().getProperty(VideoItem.MEDIA_PRES_POINT). getPropertyValue()` is defined within a `PrintWriter print()` statement having a `ps` parameter;

31) the first element of the array expression `"<" +`

`VideoItem.MSO_CONTENT_INDICATOR + ">"` is defined within a `PrintWriter print()` statement having a `ps` parameter;

32) the first element of the array expression

`getProperties().getProperty(VideoItem.MSO_CONTENT_INDICATOR).`

getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;

33) the first element of the array expression "<" + VideoItem.EXP\_PERIOD + ">" is defined within a PrintWriter print() statement having a ps parameter;

34) the first element of the array expression

getProperties().getProperty(VideoItem.EXP\_PERIOD).getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter;

35) the first element of the array expression "<" + VideoItem.MEDIA\_STOR\_VOL + ">" is defined within a PrintWriter print() statement having a ps parameter;

36) the first element of the array expression

getProperties().getProperty(VideoItem.MEDIA\_STOR\_VOL). getPropertyValue() is defined within a PrintWriter print() statement having a ps parameter and

See [https://community.cablelabs.com/svn/OCAPRI/tags/RI\\_I1\\_1\\_3\\_REL\\_B/ri/ODLSrc/OCAP-1.0/java/src/hn/org/cablelabs/impl/ocap/hn/contentdatabase/VideoItem.java](https://community.cablelabs.com/svn/OCAPRI/tags/RI_I1_1_3_REL_B/ri/ODLSrc/OCAP-1.0/java/src/hn/org/cablelabs/impl/ocap/hn/contentdatabase/VideoItem.java).

## **RELIEF WARRANTED FOR INFRINGEMENT OF U.S. PATENT 8,713,425**

102. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner's infringing activity alleged above comprise the compelling reason their respective cable television service and product is acquired in the consumer marketplace. Likewise, Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's infringing activity alleged above comprise the compelling reason their respective service and/or product is acquired in the consumer marketplace.

103. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner's infringing activity alleged above creates a performance advantage in their respective cable television networks that drives demand for respective cable television service and customer premises equipment. In similar manner, Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's infringing activity alleged above creates a performance advantage in their respective service and/or product markets that drives demand for their respective service and/or product. There is no acceptable non-infringing substitute in Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner's respective cable television system for said infringing activity alleged above. Neither is there an acceptable non-infringing substitute in Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's respective service and/or product markets for said infringing activity alleged above.

104. Progme has no adequate remedy at law against Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner's respective acts of infringement and, unless Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner are individually enjoined from their respective infringement of the '425 Patent, Progme will suffer irreparable harm. Likewise, Progme has no adequate remedy at law against Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's respective acts of infringement and, unless Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli,

Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel are individually enjoined from their respective acts of infringement of the '425 Patent, Prohme will suffer irreparable harm.

105. Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner as well as Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel had prior constructive knowledge of the '425 Patent as indicated in **Exhibit C**, the patent number "**Patent 8,713,425**" marked on the PrintHD.TV home page (located at [www.printhd.tv](http://www.printhd.tv)) web page, labelling at the bottom of the page on 5/27/14, to provide constructive notice thereof pursuant to 35 U.S.C. § 287.
106. Prohme has at all times complied with 35 U.S.C. § 287, providing Defendants with prior constructive notice, which constituted consistent and continuous notice of the '425 Patent being infringed by Defendants.
107. The method of generating and encoding the hyperlink address string structured as a PrintWriter method claimed in the '425 Patent is capable of being produced in a physical device, a web page, for constructive notice by marking pursuant to 35 U.S.C. § 287.
108. In addition, Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner as well as Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel received actual notice thereof from service of this Complaint.

109. As a result of Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner's as well as Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's acts of infringement, Progme has suffered and will continue to suffer damages in an amount to be proved at trial. Pursuant to 35 U.S.C § 284, Progme is entitled to adequate damages to compensate for infringement including a reasonable royalty from the date of said constructive notice of the '425 Patent, 5/27/14. Progme has no means of ascertaining the full extent of Defendants' respective infringement of the '425 Patent and the amount of Progme's damages resulting from said infringement except through the production of evidence thereof in Defendants' respective sole possession and control.

**PRAYER FOR RELIEF**

110. WHEREFORE, Progme prays for the following relief:
- A. A judgment in favor of Progme that Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner as well as Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel each have infringed, directly and indirectly by way of inducement and/or contributory infringement, literally and/or under the doctrine of equivalents, at least one claim of the '425 Patent;
  - B. A permanent injunction enjoining Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner as well as Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz

Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel and their respective officers, directors, agents, servants, employees, affiliates, divisions, branches, subsidiaries, parents, and all others acting in concert or privity with any of them from infringing, inducing the infringement of, or contributing to the infringement of the '425 Patent;

- C. Award to Progme the damages to which it is entitled by law and under 35 U.S.C. § 284 for Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner's as well as Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel's past infringement and any continuing or future infringement up until the date Defendants Bright House Networks, Cablevision, Charter Communications, Comcast and Time Warner as well as Defendants Amazon, Disney, HP, Hulu, iHEARTMEDIA, Jelli, Katz Media, NBCUniversal, Netflix, Samsung, SeaChange International and The Weather Channel are each finally and permanently enjoined from further infringement, including both compensatory damages and treble damages for willful infringement;
- D. A finding that this is an "exceptional action" and a judgment and order requiring Defendants to pay the costs of this action (including all disbursements) as well as attorneys' fees as provided by 35 U.S.C. § 285;



- E. Award to Progme pre-judgment and post-judgment interest on its damages and
- F. Such other further relief in law or equity to which Progme may be justly entitled.

**DEMAND FOR JURY TRIAL**

111. Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Progme hereby demands a trial by jury as to all issues so triable.

Date: November 9, 2015

Respectfully submitted,

/s/ David A. Reams

David A. Reams

Law Office of David A. Reams, P.C.

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P # 62855

**CERTIFICATE OF SERVICE**

I hereby certify that on this 9<sup>th</sup> day of November, 2015, a copy of the foregoing **COMPLAINT FOR PATENT INFRINGEMENT** was mailed via the U.S. Postal Service Certified Mail Return Receipt Requested to David A. Zapolsky, Senior VP, General Counsel & Secretary, **AMAZON.COM, INC.**, 1200 12<sup>th</sup> Avenue South, Ste. 1200, Seattle, WA 98144; Nomi Miron Bergman, President, **BRIGHT HOUSE NETWORKS, LLC**, 5000 Campuswood Drive, East Syracuse, NY 13057; David Ellen, EVP & General Counsel, **CSC HOLDINGS LLC**, 1111 Stewart Avenue, Bethpage, NY 11714; Richard R. Dykhouse, General Counsel, **CHARTER COMMUNICATIONS INC.**, 400 Atlantic Street, Stamford, CT 06901; Arthur R. Block, EVP & General Counsel, **COMCAST CORPORATION**, 1 Comcast Center, Philadelphia, PA 19103-2838; Kim M. Rivera, Chief Legal Officer & General Counsel, **HP INC.**, 3000 Havover Street, Palo Alto, CA 94304; Chadwick Ho, Senior Vice President & General Counsel, **HULU, LLC**, 2500 Broadway, Santa Monica, CA 90404; Robert H. Walls, Jr., EVP & General Counsel, **iHEARTMEDIA, INC.**, 200 East Basse Road, San Antonio, TX 78209; Mike Dougherty, CEO, **JELLI, INC.**, 703 South B Street, 2<sup>nd</sup> Fl., San Mateo, CA 94401; Mark Rosenthal, CEO, **KATZ MEDIA, INC.**, 125 W. 55<sup>th</sup> Street, New York, NY 10019; Kimberly D. Harris, EPV & General Counsel, **NBCUNIVERSAL, INC.**, 30 Rockefeller Plaza, New York, NY 10112; David Hyman, General Counsel & Secretary, **NETFLIX, INC.**, 100 Winchester Circle, Los Gatos, CA 95032; Jorge Gracia, Senior VP & General Counsel, **SAMSUNG ELETRONICS AMERICA, INC.**, 85 Challenger Road, 6<sup>th</sup> Fl., Ridgefield Park, NJ 07660; David McEvoy, General Counsel, **SEACHANGE INTERNATIONAL, INC.**, 50 Nagog Park Acton, MA 01720; Alan Braverman, Senior EVP, General Counsel & Secretary, **THE WALT DISNEY COMPANY**, 500 S. Buena Vista, Burbank, CA 91521; George Callard, General Counsel, **THE WEATHER CHANNEL, INC.**, 300 Interstate North Parkway, Atlanta, GA

30339 and Paul T. Cappuccio, General Counsel, **TIME WARNER CABLE INC.**, 10 Columbus Circle, New York, NY 10019.

Signed,

/s/ David A. Reams

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P # 62855

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF MICHIGAN  
SOUTHERN DIVISION**

INDEX OF EXHIBITS

<u>EXHIBIT</u>	<u>DESCRIPTION</u>
A	U.S. Patent No. 8,713,425
B	USPTO NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT
C	Patent Constructive Notice By Marking (35 U.S.C. § 287)



US008713425B2

Exhibit A

(12) **United States Patent**  
**Reams**

(10) **Patent No.:** **US 8,713,425 B2**  
(45) **Date of Patent:** **Apr. 29, 2014**

(54) **AUDIO/VIDEO PROGRAM-RELATED  
HYPERLINK PRINTER**

(56) **References Cited**

U.S. PATENT DOCUMENTS

(75) Inventor: **David Anthony Reams**, Rochester Hills,  
MI (US)

6,415,438 B1 \* 7/2002 Blacketter et al. .... 725/136  
6,507,410 B1 \* 1/2003 Robertson et al. .... 358/1.18  
6,795,973 B1 \* 9/2004 Estipona .... 725/136  
2002/0056091 A1 \* 5/2002 Bala et al. .... 725/34  
2003/0023971 A1 \* 1/2003 Martinolich et al. .... 725/32

(73) Assignee: **Progne Corporation**, Rochester Hills,  
MI (US)

OTHER PUBLICATIONS

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 1079 days.

"Class PrintWriter" <available from: <http://docs.oracle.com/javase/6/docs/api/java/io/PrintWriter.html>>, pp. 1-19.\*

\* cited by examiner

(21) Appl. No.: **12/687,945**

*Primary Examiner* — Kyle Stork

(22) Filed: **Jan. 15, 2010**

(57) **ABSTRACT**

(65) **Prior Publication Data**

US 2010/0146376 A1 Jun. 10, 2010

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 11/318,713,  
filed on Dec. 27, 2005, now abandoned, which is a  
continuation-in-part of application No. 09/839,074,  
filed on Apr. 20, 2001, now abandoned.

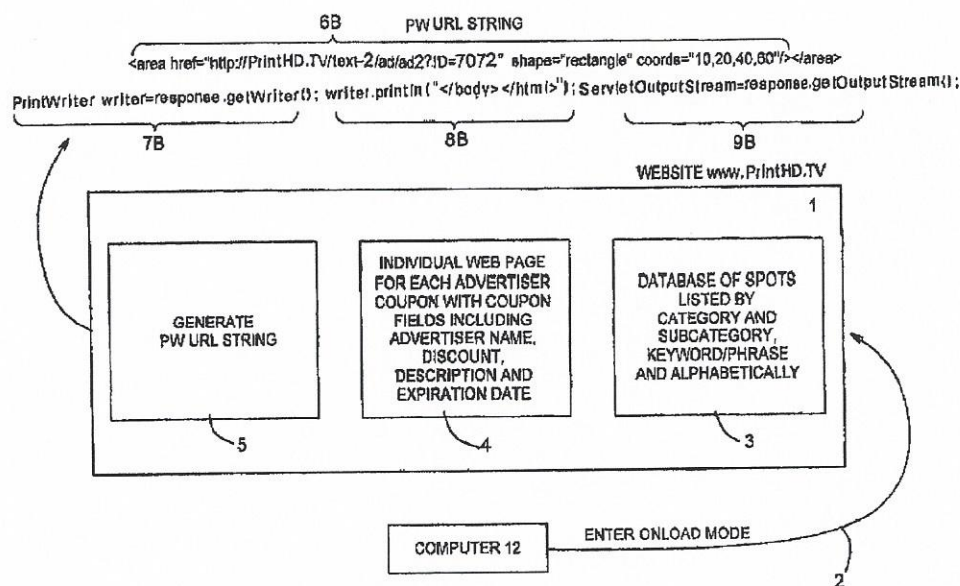
A system is disclosed for hyperlinking to hyperlinked content  
corresponding to program material wherein the hyperlinking  
prints only pre-defined printable output of the hyperlinked  
content comprising a generator for generating a hyperlink  
address string associated with the program material including  
a first attribute indicating a hyperlink address to the hyper-  
linked content and a second attribute indicating one or more  
parameters defining the pre-defined printable output of the  
hyperlinked content, an encoder for encoding the hyperlink  
address string for transmission via a program signal trans-  
mitter, the program signal transmitter for transmitting the hyper-  
link address string, a program signal receiver for receiving the  
hyperlink address string, a data processor for processing the  
hyperlink address string for hyperlinking to the hyperlinked  
content printing only the pre-defined printable output of the  
hyperlinked content and a web browser for hyperlinking to  
the hyperlinked content printing only the pre-defined print-  
able output of the hyperlinked content.

(51) **Int. Cl.**  
**G06F 3/00** (2006.01)

(52) **U.S. Cl.**  
USPC ..... **715/234**

(58) **Field of Classification Search**  
USPC ..... 715/208, 234, 243, 254, 255, 273, 274  
See application file for complete search history.

**25 Claims, 3 Drawing Sheets**







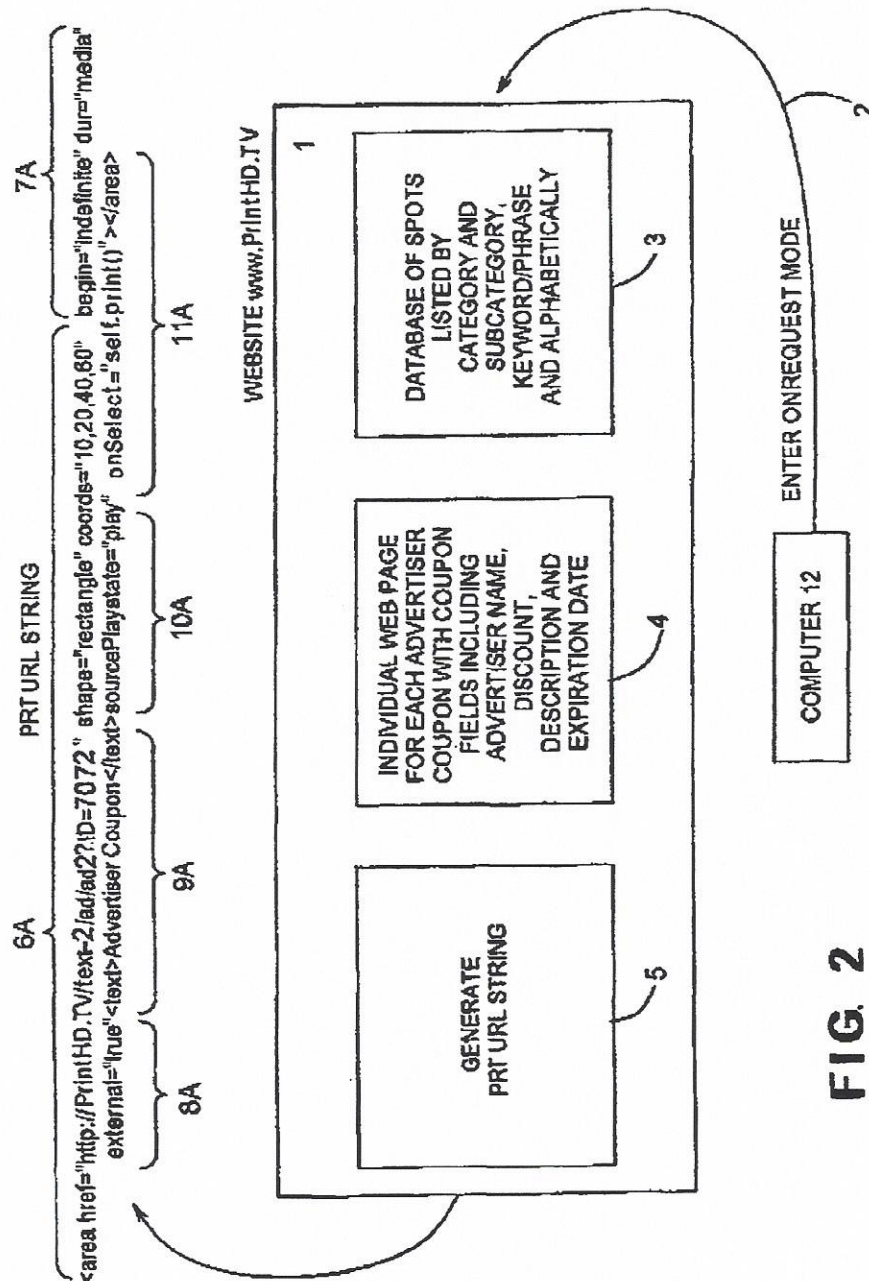
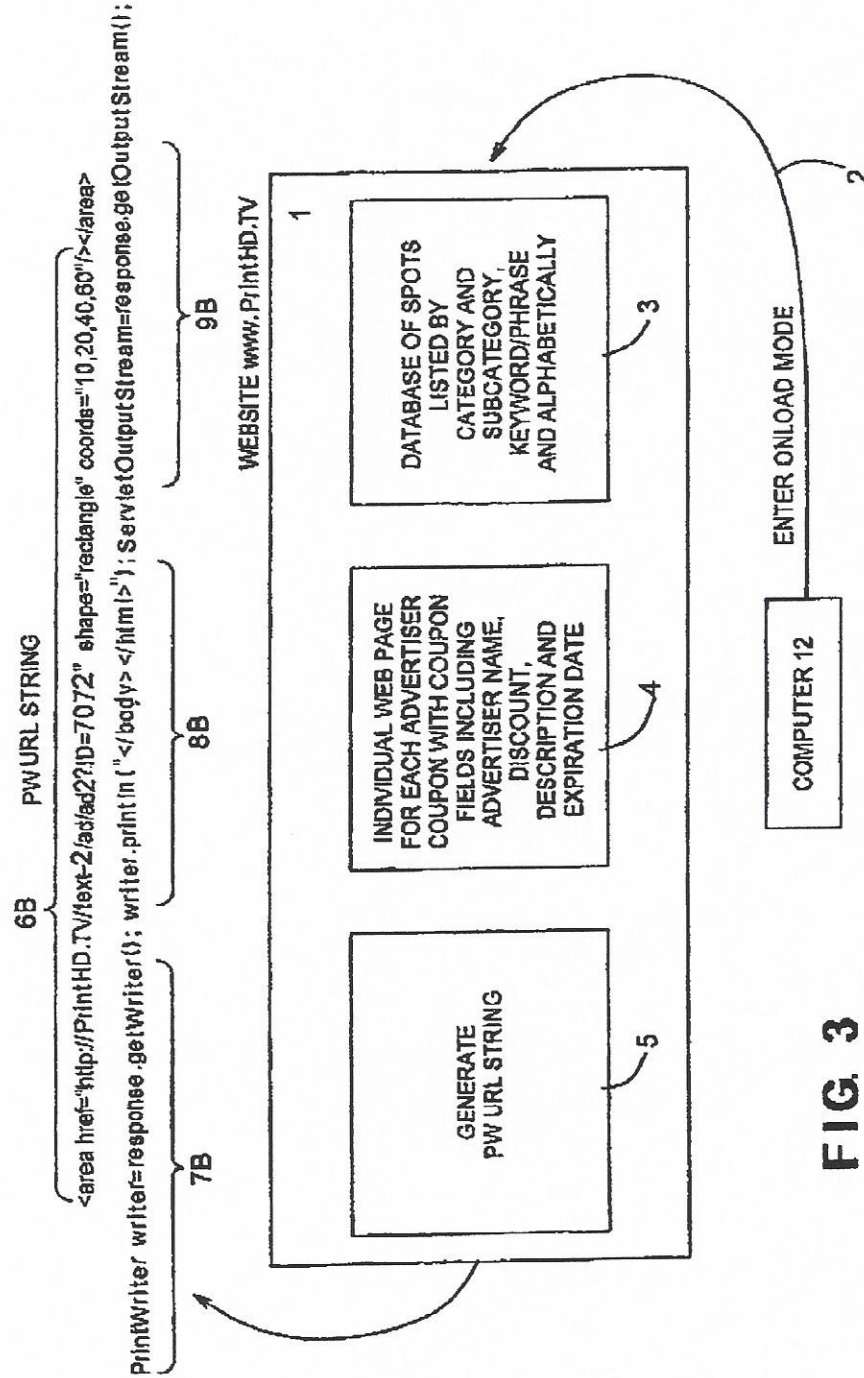


FIG. 2





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# 1 **AUDIO/VIDEO PROGRAM-RELATED HYPERLINK PRINTER**

## CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part application of U.S. patent application Ser. No. 11/318,713 filed Dec. 27, 2005, now abandoned, which was a continuation-in-part application of U.S. patent application Ser. No. 09/839,074 filed Apr. 20, 2001, now abandoned, the disclosure of which applications is incorporated herein by reference.

## BACKGROUND OF THE INVENTION

### 1. Field of the Invention

The invention relates to the field of hyperlinking to and printing hyperlinked content corresponding to radio or television program material. In particular, the invention relates to the field of hyperlinking to hyperlinked content corresponding to radio or television program material wherein the hyperlinking prints only pre-defined printable output of the hyperlinked content corresponding to the radio or television program material.

### 2. Description of the Related Art

Radio and television programs often broadcast content that is available to be hyperlinked to during the program. Prior art systems teach hyperlinking to content related to program material such as a coupon during an advertisement. Blacketter (U.S. Pat. No. 6,415,438); Estipona (U.S. Pat. No. 6,795,973); Bala, et al (US 20020056091).

Content hyperlinked to in said prior art systems is generally content that is printable. Adding printing utility to said prior art systems, however, would require adding print activation means on top of the existing hyperlink activation means in said prior art systems. It would be beneficial to combine activation of hyperlinking with activation of printing so that only one activation is required to activate both hyperlinking to and printing program-related content.

In addition, the portion of such content desirable for printing is typically less than the entire portion of the hyperlinked content. Consequently, said prior art systems teach against hyperlinking to said hyperlinked content wherein said hyperlinking prints pre-defined printable output of said predetermined hyperlinked content.

## SUMMARY AND OBJECTS OF THE INVENTION

The invention integrates hyperlinking to and printing program-related content so that hyperlinking to the content prints the content. Specifically in the invention, hyperlinking to predetermined hyperlinked content corresponding to predetermined program material prints predetermined printable output of said predetermined hyperlinked content.

One object of the invention is to integrate hyperlinking to and printing hyperlinked content related to program material.

Another object of the invention is to combine in the same hyperlink address string hyperlinking attributes and values and printing attributes and values.

Yet another object of the invention is to enable hyperlinking to predetermined hyperlinked content corresponding to predetermined program material to print pre-defined printable output of said predetermined hyperlinked content.

Additional objects will be apparent from the following detailed description.

# 2 **BRIEF DESCRIPTION OF THE DRAWINGS**

The features and advantages of the present invention can be understood by reference to the detailed description of the preferred embodiments set forth below taken with the drawings, in which:

FIG. 1 is the system of the present invention.

FIG. 2 shows one hyperlink address string that may be generated by the present invention.

FIG. 3 shows another hyperlink address string that may be generated by the present invention.

## DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS OF THE INVENTION

“Program material” as used herein may be audio or video commercial, sports, news, entertainment or non-commercial program material. The term “coupon” is defined herein expansively as in Engel, et al, U.S. Pat. No. 5,907,830, which is incorporated herein by reference, to include any printable certificate used to obtain anything of interest to a potential consumer such as special pricing, a discount, money, samples or additional product, premiums, rebates or any other thing of value or interest. Other printable content that may be related to program material and printed out in the instant invention may be other supplemental information related to commercials, additional audio sound tracks or additional visual information including information about the characters, storylines and background information related to the program, close-ups of specific items within the program material, alternative camera angles for video program material, alternative scenes and dialogue for characters, image triggers tied to particular images on screen such as a individual’s face, articles of clothing or a can of soda linking to a web page containing information about an associated product or service and interactive prompts/sequences for the viewer to select.

The term “hyperlink”, as used herein, includes a link to retrieve and render Internet or locally stored content such as text, graphics, sound, video or images. Hyperlinking behavior may be described as “seeking” the document wherein seeking in this sense means to advance the document timeline to the specified time as specified in <http://www.w3.org/TR/2001/REC-smil-animation-20010904/>, which is incorporated herein by reference. Said hyperlinking may require one or more user agents including a browser application and, to retrieve and render SVG content, an SVG user agent as specified in <http://www.w3.org/TR/SVG/intro.html#Terminology>, which is incorporated herein by reference. In addition, said hyperlinking may be activated in the instant invention by an actuate attribute or timing instructions contained in a timing attribute such as begin, dur, end, restart, repeatcount, repeatdur and fill or an event attribute without any actuate attribute. Said begin timing attribute may define when an element becomes active and said event attribute may have a value describing the event and an optional offset (for example, to account for any transmission time taken to fetch the content via hyperlink) that determine element begin time, any event being an user-interface event, an event trigger transmitted with the program signal or any other event specified in <http://www.w3.org/TR/DOM-Level-2-Events/events.html#Events-eventgroupings->, which is incorporated herein by reference. Further, the instant invention support interactive timing of animation elements to allow the author to specify that an animation should begin or end in response to an event (such as an user-input event like “click”), another hyperlink activation or a DOM method call to begin or end



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animation using the special value "indefinite" as specified in <http://www.w3.org/TR/2001/REC-smil-animation-20010904/>.

The pre-defined printable output of the predetermined hyperlinked content may comprise a multimedia document with at least one of the following components: text, image, animation, video, streaming video or audio converted to image or text. Said pre-defined printable output of said predetermined hyperlinked content may be printed out to paper or file.

The invention disclosed herein comprises a computer-implemented system for hyperlinking to predetermined hyperlinked content corresponding to predetermined program material wherein said hyperlinking prints only pre-defined printable output of said predetermined hyperlinked content comprising: means for generating a hyperlink address string including a first attribute indicating a predetermined hyperlink address to said predetermined hyperlinked content corresponding to said predetermined program material and a second attribute indicating one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content; means for encoding operably coupled to said means for generating for encoding said hyperlink address string for transmission via means for transmitting program signals; said means for transmitting program signals operably coupled to said means for encoding for transmitting said hyperlink address string to means for receiving program signals; said means for receiving program signals for receiving said hyperlink address string; means for processing operably coupled to said means for receiving program signals for hyperlinking to said predetermined hyperlinked content printing only said pre-defined printable output of said predetermined hyperlinked content: A) processing said predetermined hyperlink address indicated in said first attribute to hyperlink to said predetermined hyperlinked content and B) processing said one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content indicated in said second attribute for said hyperlinking to said predetermined hyperlinked content printing only said pre-defined printable output of said predetermined hyperlinked content and means for hyperlinking operably coupled to said means for processing for hyperlinking to said predetermined hyperlinked content wherein said hyperlinking to said predetermined hyperlinked content prints only said pre-defined printable output of said predetermined hyperlinked content according to said one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content indicated in said second attribute. Said hyperlink address string may include one or more additional attributes indicating a spatial, temporal and/or an interactive aspect of said hyperlinking.

In one embodiment herein, said second attribute indicating at least one parameter defining said pre-defined printable output of said predetermined hyperlinked content may indicate a descriptor, Digital\_Copy\_Control\_Descriptor, authorizing the printing of at least one copy of said pre-defined printable output (for example, copy one only "10"). If indicated, such descriptor may be included in at least one program table, e.g. EIT, PMT or SDT, transmitted in the transport stream.

Referring to the Drawing FIG. 2, TELEVISION FACILITY COMPUTER 12 may access WEBSITE 1 via PUBLIC/PRIVATE LINK 2, which may be the public switched telephone network, an integrated digital network or similar wire or wireless facility, to encode an advertisement with an URL string including an URL to a web page having at least one

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coupon related to said advertisement. While the Drawing and system description herein are substantially specific to television facilities, it is understood that such specification is for illustrative purposes only and the Drawing and system description apply equally to broadcast, cable, satellite and Internet television and radio facilities and any video or audio recording medium.

Via WEBSITE 1 data entering means TELEVISION FACILITY may search DATABASE 3 of advertisements ("spots") and associated URLs to coupon web pages (each located as INDIVIDUAL WEB PAGE 4 at WEBSITE 1 or at the advertiser website) to select a spot scheduled to be advertised. Said spots and associated URLs may be listed in DATABASE 3 by predetermined category such as media market and predetermined subcategory such as product/service, key word/phrase and alphabetically. When a spot is selected, the associated URL to the web page having at least one advertiser coupon may be automatically entered in said URL string and the text "[Advertiser Name] Coupon", using the selected advertiser name, may be automatically generated in said URL string as text identifying said at least one coupon related to said advertisement. TELEVISION FACILITY may alternatively directly enter via said data entering means a spot of interest and/or an associated URL to a web page having at least one advertiser coupon and said text identifying said at least one coupon related to said advertisement without selecting said spot from DATABASE 3.

Referring to the Drawings FIG. 2 and FIG. 3, said system may further include the step of entering 2 via data entering means to database means operably coupled to said generating means: said predetermined hyperlink address and predetermined hyperlink activation data for said user-activated, ONREQUEST, or automatically, ONLOAD, activating said hyperlink to said predetermined hyperlinked content including: predetermined user-activation data for said user-activating said hyperlink or predetermined automatic activation data for said automatically activating said hyperlink.

The URL STRING described herein may utilize the international Synchronized Multimedia Integration Language (SMIL) standard specified in <http://www.w3.org/TR/SMIL2/>, which is incorporated herein by reference. SMIL is an XML-based language, a "presentation description language", that allows authors to write interactive multimedia presentations. While one embodiment of the invention is described utilizing the SMIL format, the media objects may be implemented in any other format such as any JPEG format, any Graphics Interchange Format (GIF), audio or digital audio formats, Audio IFF, Computer Graphics Metafile, TIFF, BIFF, bmp, Clear, FITS, NFF, OFF, PCX, PNG, TGA, XBM, mod, any Moving Picture Experts Group (MPEG) format, Musical Instrument Digital Interface, PICT, PNG, Portable Document Format (PDF), Portable Network Graphics, Portable Pixmap, progressive coding, Quicktime, RIFF, Self Extracting Archive, sequential coding; server-parsed HTML, sprite, Tagged Image File Format, targa, Targa Graphics Adaptor, thumbnail, way, WebCGM, wireless bitmap, xpm or a different frame rate video.

Using SMIL, an author can describe the temporal behavior of a multimedia presentation, associate hyperlinks with multimedia objects and describe the layout of the presentation on a screen. Further, using SMIL media components may be named for text, images, audio and video with URL's to schedule their presentation either in parallel or in sequence. The presentation may be composed of several components that are accessible via the URL's, e.g. files stored on a web server, each having a different media type such as audio, video, image or text with the begin and end times of different com-



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ponents specified relative to events in other media components and the presentation links to components via hyperlinks. Supplemental multimedia information may also be accessed via hyperlinks to locally stored files which may have been pre-fetched and are stored at lid URL addresses. In addition to HDTV, High Definition (HD) Radio may use SMIL for multimedia encoding, transmission and receiver processing pursuant to [http://www.ibequity.com/technology/documents/SY\\_AAS.sub.—5033.sub.—002.—pdf](http://www.ibequity.com/technology/documents/SY_AAS.sub.—5033.sub.—002.—pdf), the HD Radio-SMIL specification.

#### I. Generating and Transmitting Hyperlink Address String

The invention includes a method of generating a hyperlink address string for hyperlinking to predetermined hyperlinked content corresponding to predetermined program material wherein said hyperlinking prints only pre-defined printable output of said predetermined hyperlinked content including the step of: generating via means for generating an hyperlink address string including a first attribute indicating a predetermined hyperlink address to said predetermined hyperlinked content corresponding to said predetermined program material and a second attribute indicating one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content. Said method may further include entering via means for entering said predetermined hyperlink address and/or said one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content to means for storing data operably coupled to said means for generating. Said means for generating may comprise computer means, either a website or receiver computer means. Said hyperlink address string may comprise a character string and said predetermined hyperlink address comprises a URL. Said method may further include the step of encoding said hyperlink address string for transmission in conjunction with program signals representative of said predetermined program material.

URL <a or <area href/shape and coords attributes. The URLs may be a simple identifier or several lines of text characters to specify the actual address of URL addressable content, either local or interne. The href portion of this attribute comprises the first attribute in the hyperlink address string of the invention including the predetermined hyperlink address to the predetermined hyperlinked content. To enter the appropriate href attribute, an advertiser may first select the media being used to transmit the spot, HD Radio <a href, HDTV <area href or Media Player Audio <a href or Video <area href. The value of the href attribute the URL of the link's destination, may be automatically entered in SMIL URL STRING once entered as an advertiser's URL to WEB PAGE 36. While the <a href element associates a link, href attribute, with a complete media object, the <area href element using the shape and coords attributes associates the link with spatial portion(s) of an object's visual display. In addition, the area element allows breaking up an object into temporal subparts using begin and end attributes. Area (and a) element attributes include actuate, shape, coords, href, begin, end, dur, sourcePlaystate and external. Pursuant to said HD Radio-SMIL specification, HD Radio is to utilize only the <a href element to reference an URL link because the <area> element implies a display which can be partitioned. Since there is no shape or coords attributes associated with the <a href URL attribute, the shape and coords attributes are not included in the SMIL URL String <a href attribute. In said predetermined hyperlink address the shape attribute specifies the shape of the hyperlink display with the values of rectangle shape="rectangle", circle shape="circle" or polygon shape="polygon". The coords attribute specifies the relative

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position of the hyperlink display on the screen and include the following values: coords="0,0,50,50" (Upper Left), coords="50,0,100,50" (Upper Right), coords="0,50,50,100" (Lower Left), coords="50,50,100,100" (Lower Right), coords="25,25,75,75" (Center) and coords="10,20,40,60" (Lower Center).

Said hyperlink address string may further comprise a third attribute indicating predetermined hyperlink activation for hyperlinking to said predetermined hyperlinked content wherein printing said pre-defined printable output of said predetermined hyperlinked content is activated by said activation of hyperlinking to said predetermined hyperlinked content. Said one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content may comprise at least one parameter specifying a predetermined spatial or temporal aspect of said predetermined hyperlinked content.

Timing attributes begin, end and dur. To enter the appropriate timing attributes, an advertiser may enter 2 to DATABASE OF SPOTS LISTED BY CATEGORY AND SUB-CATEGORY, KEYWORD/PHRASE AND ALPHABETICALLY 3 the desired URL hyperlink activation mode, user-activated (ONREQUEST) begin="indefinite" dur="media" 7A or automatically activated (ONLOAD) begin="dd:hh:mm:ss.0.sup.1-n" and end="dd:hh:mm:ss.0.sup.1-n" (NOT SHOWN), day, hour, month, second, fraction of second start/end times scheduled, for example, in 1-n spots in an advertising campaign. The value of "indefinite" for the begin attribute signals that the beginning of the element is determined by user hyperlink activation during the playing of associated program material and the dur attribute value of "media" (the "dur" is the media duration). Another value for the dur attribute may be a clock value. If there is more than one begin and end value, such as to specify the start and end date/times in several spots scheduled to run in a television or radio advertising campaign, the next begin time is always the earliest begin time after the current time as determined by SMIL player clock and each respective begin and end value is separated by a semi-colon (;). Time values to begin and to end are relative to the beginning of the associated media object, i.e. television spot having related coupon web page for viewers to access. There is no need for month and year date codes in the begin and end time attributes because, since the time is measured from the most recent time as determined by SMIL player clock, the month and year can be determined from the clock internally.

Timing attributes and timeline data structure used in SMIL for hyperlinking to predetermined printable content related to predetermined program material is also used in the invention for printing of said content. For example, an advertiser may specify that hyperlinking to and printing a spot-related coupon only take place while the ad is playing, e.g. between the SMIL begin and end or par values, or even immediately after the ad plays, e.g. pursuant to the SMIL seq time value. The SMIL dur value indicating the time value an object is to remain active could also indicate the same value for object printing. SMIL repeatCount and repeatdur indicating respectively the number of time and total amount of time an object will repeat could apply equally to object printing.

External/Internal attribute. The internal attribute defines whether or not the link destination is opened by a current or an external application, defining whether or not the hyperlink is to another node in the same SMIL presentation or local memory with values of true or false, for example internal="true" 8A. In one embodiment disclosed herein, the apparatus may have a local, e.g. lid URL, hyperlink only so that apparatus does not comprise Internet web browser means



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and web page content may be transmitted in hyperlink address string or in advance of the hyperlink address string transmission ("prefetched") via the SMIL Prefetch Element (using the mediaSize attribute to define a relative amount of the object to prefetch, mediaTime attribute to define a relative amount of time to dedicate to prefetching and a bandwidth attribute defining the relative amount of bandwidth to dedicate to prefetching).

Actuate attribute. The URL hyperlink activation mode may be selected and entered 2 as either user-activated (ONREQUEST) or automatically activated (ONLOAD). If the ONREQUEST (user-activated) hyperlink activation mode is entered, which may be the default value for this attribute, the value of the actuate attribute may be <text> Advertiser Coupon</text> 9A or, if the ONLOAD (automatic) hyperlink activation mode is entered, the value may be actuate="on Load" (NOT SHOWN). The Company Name text may be automatically entered in the URL STRING text field upon user selection of the ONREQUEST hyperlink activation mode. Further, the attribute value actuate="on Load" (NOT SHOWN) may be automatically entered in the URL STRING upon user selection of the ONLOAD hyperlink activation mode. Unless actuate="on Load" (NOT SHOWN) is entered, the default value for the actuate attribute may be actuate="on Request", which on Request value as the default does not need to be specified expressly to indirectly specify or indicate user-activated hyperlink activation and instead <text>Advertiser Coupon</text> 9A may be entered to display text to prompt user hyperlink activation, for example for ONREQUEST <text>Advertiser Coupon</text> 9A and for ONLOAD actuate="on Load" (NOT SHOWN).

SourcePlaystate attribute. The sourcePlaystate attribute controls temporal behavior of the presentation containing the link when traversed. This attribute has 3 possible values: play, indicating when the link is traversed, the presentation containing the link continues playing; pause, when the link is traversed, the presentation containing the link pauses (to resume playing when the resource is completed) or stop when the link is traversed, the presentation containing the link stops without any resumption. An example of this attribute is sourcePlaystate="play" 10 A.

In one preferred embodiment disclosed herein said data entering means and generating means may comprise website means or other database means, i.e. WEBSITE 1. In addition to web utility, the instant invention enables receivers such as STB receivers to generate code for Java TV applications. The description of the invention using website means for generating the hyperlink address string applies equally to the receiver generating the code.

Referring to FIG. 1, WEBSITE 1 may then output a generated URL string to either AUDIO FREQUENCY ENCODING DEVICE 16 to encode said URL string for transmission via program audio channel data transmission means or download said URL string to program signal transmitting means. AUDIO FREQUENCY ENCODING DEVICE 16 may inaudibly embed said URL string in the program audio itself. Audio frequency encoded data signals may then be fed from AUDIO FREQUENCY ENCODING DEVICE 16 to RECORDER 17 and onto STORAGE MEDIUM 18, or, alternatively, sent through AUDIO TRANSMISSION LINK 19 (such as a network program distribution system) to MIXER 15 located at TELEVISION FACILITY to be mixed in with program audio signals. STORAGE MEDIUM 18 may be sent to TELEVISION FACILITY for later playback via PLAYBACK DEVICE 20. Said URL string may be downloaded via PUBLIC/PRIVATE LINK 4 to TELEVISION FACILITY to be processed and transmitted via TELEVISION DATA

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TRANSMISSION LINK 21 at appropriate times in conjunction with transmission of associated program signals. Downloaded via PUBLIC/PRIVATE LINK 4, COMPUTER 12 may then output said URL string to DATA ENCODING DEVICE 13 to encode said URL string for transmission via conventional program data channel means such as VBI, MPEG, subcarrier, etc. In the alternative, COMPUTER 12 may output said URL string to DATA ENCODING DEVICE 14 to encode said URL string for transmission via program audio channel means (i.e. embedding in program audio signals via MIXER 15).

Said URL string may be generated for transmission via dtvcc, using the same television transmit channel used for closed captioning, thereby making said URLs available virtually everywhere television programming is received and enabling the use of closed captioning tools to encode and broadcast the URLs. Preferably, however, said URL string may be transmitted via data packets in transport streams and, in the HDTV embodiment of the invention, the hyperlink address string is transmitted via ancillary data packets transmitted in a transport stream with corresponding program material.

## II. Apparatus

The apparatus claimed herein is tied to and dependant upon said data entering means and generating means. Indeed, said apparatus is dependant on said data entering and generating means to receive the first and second attributes included in the hyperlink address string for hyperlinking and printing predefined printable output of predetermined hyperlinked content.

The program signal receiver apparatus of the invention is for hyperlinking to predetermined hyperlinked content corresponding to predetermined program material wherein said hyperlinking prints only pre-defined printable output of said predetermined hyperlinked content comprising: means for receiving program signals for receiving a hyperlink address string including a first attribute indicating a predetermined hyperlink address to said predetermined hyperlinked content corresponding to said predetermined program material and a second attribute indicating one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content; means for processing operably coupled to said means for receiving program signals for hyperlinking to said predetermined hyperlinked content printing only said pre-defined printable output of said predetermined hyperlinked content: A) processing said predetermined hyperlink address indicated in said first attribute to hyperlink to said predetermined hyperlinked content and B) processing said one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content indicated in said second attribute for said hyperlinking to said predetermined hyperlinked content printing only said pre-defined printable output of said predetermined hyperlinked content and means for hyperlinking operably coupled to said means for processing for hyperlinking to said predetermined hyperlinked content wherein said hyperlinking to said predetermined hyperlinked content prints only said pre-defined printable output of said predetermined hyperlinked content according to said one or a plurality of predetermined parameters defining said pre-defined printable output of said predetermined hyperlinked content indicated in said second attribute.

The program signal receiver apparatus may comprise a television receiver apparatus, a radio receiver apparatus and/or a media player apparatus. The means for receiving program signals within said program signal receiver apparatus may comprise tuner means.